# COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER AND R. DAWSON HALL, *Editors.*

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## *Astonishing Moderation*

ONE may well read with care the section on coal of the report made to the Senate by the Select Committee on Reconstruction and Production, presented by Senator Calder and released for publication this week. We confess to agreeable surprise at the temperate tone of the document. It is not argumentative; it appears to be a carefully-prepared digest of opinions and statistical data followed by a simple set of recommendations as to legislation. The report has none of the earmarks of the F. T. Miller style of publicity that accompanied the hearings of the Calder committee.

The recommended legislation affecting the coal industry covers the same ground as the amended Calder bill as reported by the La Folette committee, providing not for regulation of the industry but simply for collection and publication by the government of current facts on coal. An amendment suggested to the Transportation Act, tying the hands of the Interstate Commerce Commission in handling transportation emergencies, indirectly affects coal.

Excessive prices and profits are stressed, and the quarrels within the coal industry itself, the need of protecting the public which paid the excessive coal bills of last year, are headlined.

The Calder report is convincingly written. It will require much careful explaining.

## *The Value of Coal Properties*

CONTEMPLATING the established fact that there are in the United States more bituminous coal mines by 40 per cent than are necessary to produce the half billion tons of coal we require in a year and the further fact that so far this year the market for soft coal is so indifferent that but little business is being done, one seeks an explanation for the quiet but persistent activity in coal lands, coal mines and the development of both old and new properties.

The wise man in the coal business—the one who succeeds year in and year out—is he who buys his properties when the price of both coal and coal land is low and who buys only the best. The price of coal itself was no more out of line last year than the price of coal land and coal mines. The "sense of value" of the owner of coal properties is returning to normal more slowly than the price of coal descended, but trade in mines has been picking up in recent weeks.

Why should anyone open a new mine now? What possible warrant is there for increasing productive capacity? There never has been a time in the history of our coal industry when there were sufficient mines producing the highest grades of coal to meet the demand. A large public utility advises us that whereas before the war the coal it received averaged 8.5 per cent ash, during the war and in 1920 its coal—the best it could get—was 20 per cent ash, and it has not this year been able to get coal averaging less than 15 to 18 per cent ash. From a commercial standpoint one is fully warranted in opening up a new mine that will furnish high-grade low-ash low-sulphur coal. Such a product is salable any day in any year. The new mines that are being developed and the old mines that are being rejuvenated and enlarged this spring are of this character. The dirty coal mines, whose number is legion, cannot and do not expect to operate when they must meet competition. The consumer may not know the meaning of B.t.u. but he knows good coal from bad and he buys good coal by preference. Therefore mines that produce poor grades of fuel automatically close during such periods as the present and become standby reserves, as it were, against times of high demand and maximum output.

A second factor that governs the selection of a mine for purchase or the development of a new property in such times as these is the cost of operation. The variation in this is well illustrated in the cost reports of the Federal Trade Commission. The reports of 425 companies operating 789 mines in central Pennsylvania in 1918—a boom year—show that 33 per cent of the companies with 55 per cent of the total output had costs below the average for all and that 67 per cent of the companies producing 45 per cent of the total had costs above the average. The range of costs above and below the average is even more striking—the lowest cost reported for 1918 in this field was $1.55 per ton, or 66c. below the average, which was $2.21, and the highest was $3.73, or $1.52 above the average.

Likewise in the southern field of Illinois the report of the Federal Trade Commission shows that of the 54 companies reporting costs in 1918, 27, or one-half, representing nearly 60 per cent of the total output, had costs equal to or less than the average—$1.93 per ton—and that for the upper 40 per cent, costs ranged from $1.95 to $2.60 per ton. The highest cost was 67c. above the general average and the lowest cost was 38c. below the average. The range in costs thus exhibited as between companies in the same field, striking as it is, is no more marked than that of costs at mines of the same company in the same field. It is at times like these that operators shut up their high-cost operations and push the low-cost properties. It is also at times like these that consumers turn from the mine that produces inferior coal to that with a high-grade product.

It is therefore the operation of the law of the survival of the fittest that has closed several thousand of the 8,722 mines that were producing coal at the end of last year and that encouraged the opening of a number of new properties at the same time. In fact the next few months will be the opportune time in which to develop a source of supply of the best coal.

## *A Good College Ill-Housed*

FOREMOST among mining states is the Commonwealth of Pennsylvania. Oldest and largest, one would expect that the college which the state has built and fostered as its own, the institution which it knows as Pennsylvania State College, would have a building second to none.

You are, therefore, surprised, in passing down the main street of the village known as State College, when shown a series of abutting ramshackle wood buildings you are told that here is the more important of the two structures which the state has dedicated to the use of its mining students. At variance with all that has been taught about the need for buildings such as will promote public safety and in startling contrast with the housing advocated on behalf of the toilers in the mines is this inflammable, unsightly frame building in which are to be found all the machinery and apparatus for the instruction of students.

Your guides would have you look elsewhere. Here is the large Mechanical Engineering Building, the Carnegie Library, the Chapel, the Liberal Arts Building, the Gymnasium, the Chemistry Hall. Well beyond are the agricultural buildings—substantially built, well equipped, modern, thoughtfully designed. Agriculture at least is well cared for. Even the live-stock barn with its decorative silos and the hall where the stock exhibitions are held are better than that which a great mining state allots to its mining students.

Yet State College has a good mining school which has given the state and the nation worthy, well-equipped mining men. A start has been made toward a better future. A substantial mining building already has been erected large enough to contain the mining museum with two main and accessory offices, and plans have been laid for its extension. All that is needed is the appropriation to make the project an accomplishment.

The agglomeration of sheds on the main street of the village eventually will be vacated for better quarters, but why not soon? The need is immediate. Should a fire occur—and no earthly power could halt it if started—the state would not only have to erect a new building but buy new equipment and find some way of caring for the 150 or more students meantime.

State College was built by the state and accepts the state's direction. It has not gone to generous minded plutocrats for its sustenance. Something has been said lately of the questionable value of such universities as are financed by the wealthy rather than by taxes. State College is a reminder that, at least in Pennsylvania, the care and interest of the body politic in mining education is not as devoted as it might be, and that after all, the bequests and gifts of the wealthy are a safer basis for success and prosperity than the revenues of the state, even in a commonwealth like Pennsylvania, a rich mining state which might be expected to provide liberally for the training of its mining engineers.

The public has been somewhat restive of late as to the progress in the coal industry. It is thought that it displays too much respect to tradition and too little inventive ability. Nothing will do more to put the breath of progress into its lungs than the inspiration for advance and research which a college training gives.

The legislators should be urged by every mining man not to overlook their duty to this educational establishment. The state is in need of men of trained minds to direct its mining enterprises as well as to cultivate its farms or manage its shops. The present session of the Pennsylvania Legislature should provide the funds for the necessary construction. The present year is not a time for unreasonable economy. When business halts, the state and national governments should not by an excessive parsimony add to the number of the idle.

## *By Mule or by Locomotive*

SO MANY and varied are haulage problems that it is hard to visualize them all. Mr. Kingsland in his article in this week's issue, entitled "Advice to Those Who Propose to Install Locomotives for Gathering Purposes," reflects peculiar conditions which have to be met in some regions. The Connellsville system of mining, which is in operation in the Connellsville mines, in those of the Consolidation Coal Co. and in McDowell County, West Virginia, is not conducive to concentration in operation. Still less is work concentrated when pursued according to the modified Connellsville system adopted by R. A. Magraw in his Utah mines, and also described in this issue.

Not infrequently is safe and complete mining attained by methods which prevent concentration of effort. Few methods are so favorable to effective haulage as the old plan of rooms to both right and left with small pillars in both rooms and entries and a pillaring angle in the rooms which is but slightly inclined to the direction of the entry. The tonnage from such entries is so large that four or five of them will keep a mine of fair output busy. Consequently the gathering radius can be kept small, which is a manifest advantage where the gathering unit is one able to travel only slowly.

The need of concentration is readily apparent, but in most mines the work really is concentrated. Especially is this true in low coal, for it is hard to keep development enough ahead, and while the area opened does not perhaps produce a large tonnage the number of cars delivered from a given area is greater than where the cars are larger and take longer to fill. In low coal wherever the gathering unit has to take cars into, and remove them from, the rooms, there is a need for mechanical operation into which the lack of concentration cannot enter as a disturbing factor. The mule and horse require such generous headroom that their employment for this service is unprofitable.

Besides, where men are indisposed to push their loads to the room entry and push the empties back again, the driver is equally disinclined to chase the tail chain into the room and bring out a load and then hitch to an empty and after its delivery follow the trace chain to the room neck. He likes to ride better than to run. Driving a gathering mule is a hard job and one which does not result in much accomplishment. It is extremely tiring to the man who does it eight hours, day after day, for the going is not easy where the roof is low and where, cars being small, trips are many.

Even if he is relieved of half of these trips by the good offices of the miner, he likes to make them on a locomotive rather than largely on foot and he is more disposed to keep going when the locomotive does the work than when the energy expended is his own.

In short both in thick and thin coal there is generally the needed concentration, and in thin coal whether the work is concentrated or not does not answer the question of locomotive or no locomotive, because in low coal other conditions make a locomotive imperative.

# Labor and Uncertainty in Moving Cars Saved by the Use of Go-Devils

## Gravitation of Cars Upon the Surface Is Uncertain, Depending Much Upon Weather Conditions—The Installation of Go-Devils at the Scott Anthracite Colliery Greatly Reduced Tramming Expenses and Rendered Operation Far More Reliable

By Dever C. Ashmead
Wilkes-Barre, Pa.

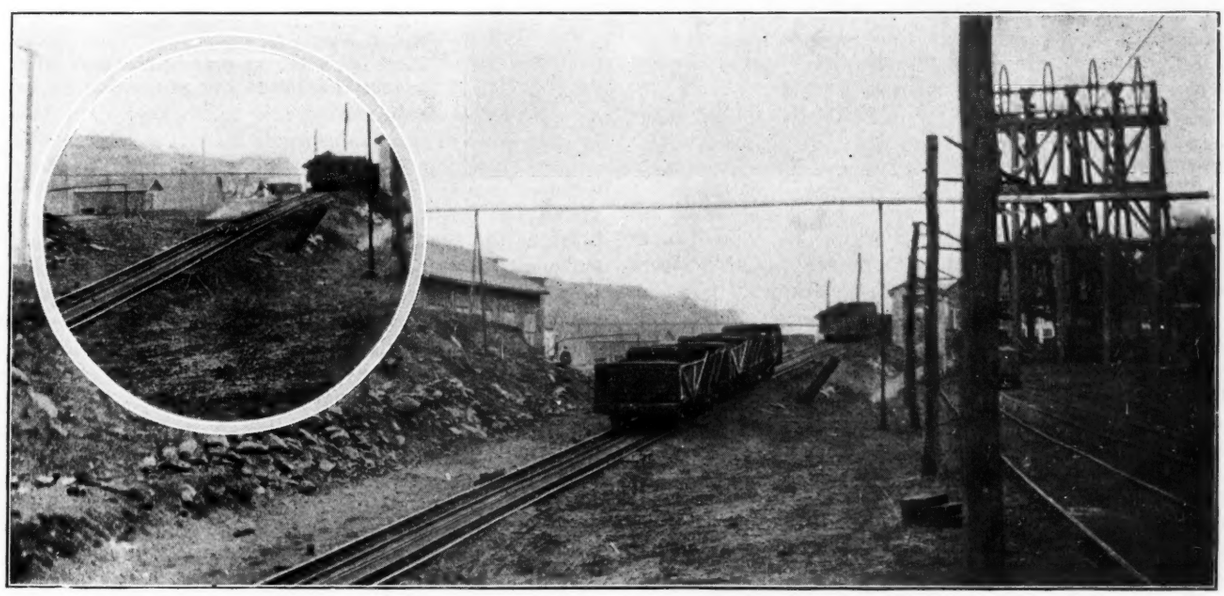
GRAVITY as a means for moving mine cars upon the surface is rarely advantageous and never dependable because it is impossible to grade the tracks so as to suit the diversity of equipment and its varying condition. A fall that is adequate at one time of the year may be utterly inadequate at another when frost is on the tracks or the oil becomes stiff and therefore a poor lubricant. A gradient that may serve admirably to move one type of car may not be sufficient to budge one of another type, and an inclination that was designed for an old car may be entirely unsuited to a new one of similar character, or vice versâ. Cars moved by gravity are continually traveling either too fast or too slow.

Around anthracite mines mine cars of many different types are likely to be found. Some of these may have roller bearings, whereas the majority are fitted with plain journals. Furthermore, cars of different sizes may come to the same breaker, as the beds worked may not be all of the same thickness. Then, again, not infrequently two collieries are combined. In this case it may be necessary for this reason to handle two different types of cars. Furthermore, new cars are always being put in service to replace those worn out or to augment the number already in use. Conditions of this character signify that a gradient that may be established for one type of car soon will become useless, and it is practically impossible to establish any inclination that will accommodate all types of cars and conditions of operation.

### Gravity Here Failed to Do the Work

At the Scott Colliery of the Susquehanna Collieries Co., at Kulpmont, Pa., conditions exist somewhat similar to those outlined above. Here the cars were formerly moved from the shaft landing to the breaker and back again by means of gravity. From the shaft to the breaker the distance was about 400 ft. The grade over this road, however, did not give the same amount of trouble as did that over which the empty cars had to travel. When the cars returned to the surface from the top of the breaker they moved by gravity a distance of about 400 ft. to the foot of a car haul, by which they were elevated sufficiently to enable them to make the 600-ft. return trip to the top of the shaft.

Although the short distance from the shaft landing to the breaker, as stated above, did not give the same



TRIP OF EMPTY CARS ASCENDING INCLINE ON WAY TO SHAFT

The shaft headframe can be seen on the right. The track on that side is for the use of loaded cars. Between the rails of the empty track can be seen the roadway on which the go-devil travels. Along these rails a small steam pipe is laid. Exhaust steam runs through this pipe and keeps the track thawed out at all times. In the left-hand corner of the illustration can be seen the go-devil returning for more cars. It has taken the empties almost to the knuckle and is going back for more, leaving the trip resting on the safety catches. Evidently there was insufficient room at the top to hold all the cars brought up on that trip.

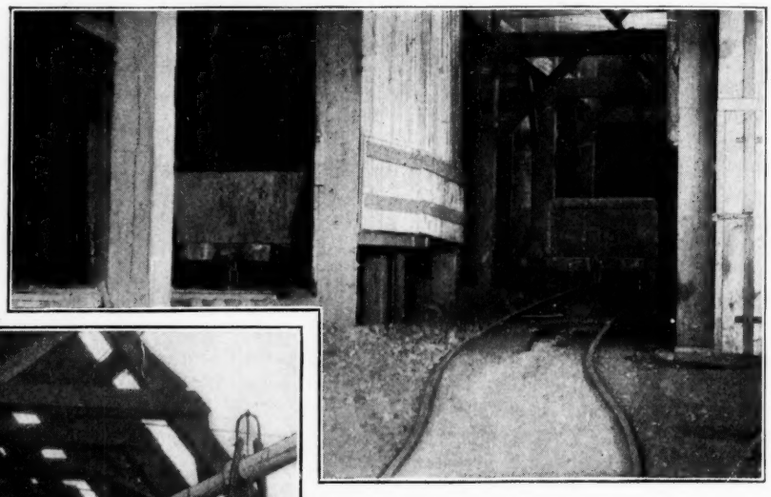
amount of trouble that the longer return journey for the empty cars entailed, it was found necessary, nevertheless, to employ a trolley locomotive to assist the loads. This motor did not operate on the main track but on one parallel to it. A pole was placed upon this locomotive sufficiently long to reach and push the cars upon the loaded track whenever this became necessary.

On the empty road the cars that rolled easily would move with such speed that it became necessary to sprag them so that they would not strike too hard those that were in front of them. Those that were stiff would not move on this grade in the winter, and it became necessary to push them. This meant that during the cold months men working in the blacksmith and machine shops frequently would be called out to move these empty cars. At times it took as many as twenty men to handle the empties. This was not only expensive but men who should have been working at their proper jobs were performing other tasks for which laborers should be employed and not skilled workmen.

It was impossible to keep a regular crew for this work, as it was necessary only at times, and when the necessity was over these men would be without a job. Utilizing the services of high-priced mechanics at this kind of labor meant that their work was always behind, and as a result other departments of the mine were interfered with, causing either a loss in efficiency or in the amount of coal produced. It became necessary, therefore, to devise some means to take the place of the man power required to move the empty cars. A number of different plans were proposed, but the idea of using go-devils to facilitate this car movement finally was adopted.

In the system that has been developed at this colliery, mine cars kicked off the cage at the top of the shaft are permitted to gravitate as far as they will. In many cases they travel all the way to the breaker. When they stall upon the grade, however, they are picked up by the go-devil, which pushes them to a point where they will run freely. This device is operated by a small electric hoist from a brick building, so constructed as to afford the hoist man a clear view of the track. The go-devil is so arranged as to move upon its own rails independent of the mine-car track and also so that it may pass under the cars in the direction opposite to that in which they are moving or are to be moved. When pulled in the same direction as that in which the cars are to travel, an arm extending upward engages the axle of the car and moves it along the track.

When a loaded car has arrived at a point near its destination, the go-devil releases its hold and the car gravitates for a distance of about 53 ft. to the car hoist at the foot of the breaker. This 53-ft. grade is sufficiently steep so that even the stiffest car will not only traverse it freely but arrive at the hoist with sufficient momentum to kick the empty car off the cage. The empty car moves onto a transfer table. It is then transferred to such a position that it will clear the breaker headframe, from which point it travels by gravity a distance of about 100 ft. to the foot of the empty-car incline. The grade from the breaker to this point is sufficiently steep to insure that the cars will not stick, and as the distance is short, they will not attain such momentum that they will strike with a disastrous blow any car that may be in front of them.



**Bottom of Breaker Hoist**

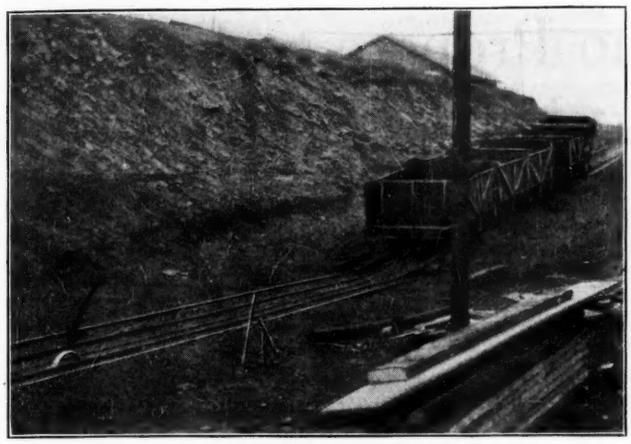
On the left is a mine car on the cage ready to be hoisted, and on the right is a car on the transfer table about to be run to the foot of the incline.

**Top Landing of Shaft**

A transfer table places the cars in the proper position for caging. One mine car is on the transfer table and the other is ready to run on the cage.

### Trip Usually Consists of Five Cars

From the foot of the empty-car incline a second go-devil then returns to the bottom for another trip. Safety stops are placed at intervals along the incline, so that the cars may be stopped at any point and the



TRIP OF EMPTIES STARTING UP INCLINE

At the bottom of the slope is a curved piece of steel which the go-devil on its return pushes down as it passes, thus signalling the hoistman at the top of the incline that he must stop the engine or the go-devil will run into the sheave wheel at the bottom.

go-devil brought back to the bottom for more empties. The ordinary trip from the bottom to the top consists of five cars, but in many instances as many as six are thus moved. Near the top, if cars are left standing on the grade, the go-devil can push as many as twelve or fifteen past the knuckle.

From the knuckle to the shaft there is a down grade sufficiently steep to allow the cars to move freely by gravity. Here the empties are run upon a transfer table and delivered to the proper track leading to the shaft. This shaft has four compartments, and as many as 560 mine cars are raised and lowered during a day's run. Thus it may readily be seen that the go-devils are likely to be kept busy throughout the entire shift.

The advantages that have resulted from the installation of this arrangement are many. In the first place, the number of men regularly employed on the surface tracks has been reduced by six. Furthermore, it is now unnecessary in winter time to call upon men employed in the blacksmith and machine shops to come out and help move mine cars. The old car haul that was used to raise the mine cars to a sufficient height to permit them to drop back to the shaft by gravity has been dispensed with. Furthermore, the cars now move when such movement is necessary and not alone when weather conditions permit.

The mine locomotive referred to as being required to handle the loaded cars has been released for use within the mine. What probably is of as much importance as anything else is that the worry, care and attention that the old method imposed upon the management has been lifted, so that the various officials may now devote their time to the more essential details of the handling and preparation of the mine output. Half the inefficiency around a mine results from the time and effort expended on transportation worries which with proper equipment, forethought and expenditure would not arise.

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THE INTERSTATE COMMERCE COMMISSION reports that during 1920 the pay of enginemen and trainmen, the cost of fuel, locomotive and train supplies, and engine-house expenses was $2.05 per train mile in the case of freight trains as compared with $1.65 the year before. For passenger trains the expense in 1919 was $1.08 per train mile. The expense for fuel for freight trains averaged 63.8c. per train mile compared with 49.6c. during 1919. Coal used in the transportation service increased 88c. per ton over 1919.

## Setting Sights in a Silesian Mine

SIGHTS usually are set in American mines by a transit used either as an instrument for measuring angles or as a compass. Something is to be said in favor of a method of sight setting by a compass swung on a cord, the end of the cord being moved till a point is reached that gives the line the desired direction. The surveyor or foreman thus setting sights is not troubled by having to carry a lot of heavy equipment, and he needs no assistance except such as can be obtained at the mine face. He does not hinder traffic as much as when backsighting and foresighting, nor does he need air clear from powder smoke.

His work with such a compass is lacking in accuracy, but it is close enough for room and crosscut sights, and even for back-heading work it is readily available, provided there are no iron rails to lead the compass needle astray. Celerity, convenience, low cost and the ability to use men of lesser training are advantages.

When sights are needed they should be given promptly and they should always be set where they are needed. Ready availability will fill the want more truly than will mere accuracy. Extreme meticulousness is needed only in main haulageways. The transit alone will perform such work. The illustration shows a German official (in the inevitable uniform) reading the compass by the light of an acetylene lamp in the Ferdinandhütte mine in Silesia. Apparently he has clamped the needle before taking the reading.

RAPID WAY OF SETTING SIGHTS

Sights are set far apart; nevertheless, in narrow places they can be set with this instrument, as no focal length has to be accommodated and room does not have to be provided for the crouching engineer.

# Advice to Those Who Propose to Install Locomotives for Gathering Purposes*

## Storage-Battery Locomotives Suited to Concentrated Work Where Grades Are Under Five Per Cent—Combination Locomotives Adapted to Gradients Under Ten Per Cent—Cable-Reel Locomotives Can Work Satisfactorily on Pitches up to Fifteen Per Cent

By R. L. Kingsland†
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COMPARISONS between costs of gathering with different mechanical equipment cannot be safely made, because the conditions under which the work is performed are so exceedingly diverse. Costs also vary very greatly from time to time. A case cited from records of the Consolidation Coal Co. shows the influence of outside conditions on the cost of gathering.

During 1916 coal was gathered for 5c a ton. During 1920 it was gathered for 20c. a car with the same locomotives from the same mines and under mining conditions more favorable to the locomotives. This increase in gathering costs is accounted for by higher wages, poor and irregular railroad-car supply and a decrease in the efficiency of labor. Into these changes the physical condition of the miner did not enter except as it helped to hold down costs which rapidly mounted by reason of the causes mentioned.

### Mules Still Gather Most of Coal Mined

The simplest form of gathering is where the miners themselves push the cars in and out of the rooms. Obviously this method has marked limitations, but it is still being employed in some places where the grades are in favor of the loads and where small cars are used. Horses or mules probably still gather the greater part of the coal mined in the bituminous fields. The experience of the Consolidation Coal Co. has shown that a fair average for live-stock gathering is two and one-half cars per hour, or a total of twenty cars during an eight-hour day.

Mechanical gathering is comparatively new and, I believe, should be approached by the average mine operator with much caution. In my opinion, the instances where a decrease in gathering cost can be made by changing from live stock to mechanical gathering are the exception rather than the general rule. By this I do not mean to say that mechanical gathering does not have an important part to play in the coal mining of today but that the reason for its establishment is often not to save cost but to meet other problems, among which may be mentioned: Scarcity of labor, objections of laboring men to the pushing of cars, and the fact that at some mines increased tonnage can be obtained when coal is gathered by mechanical means because there is then less congestion in traffic.

The only power that the Consolidation Coal Co. has used for the propulsion of gathering locomotives has been electric energy, so I shall limit myself strictly to a consideration of electrically-driven locomotives. Of these there are three principal types: crab-reel, cable-reel, and storage-battery machines.

Owing to the excessive amount of labor required in pulling the cable into the rooms, favorable results could not be obtained from the straight crab-reel locomotive. Furthermore this type of gatherer cannot push an empty car into a room. The Consolidation Coal Co. has found, however, that in some mines it was handy to have crab reels on some of its locomotives, as they were thus made suitable to odd jobs.

The cable-reel locomotive is one of the types most readily adaptable to gathering. These machines are highly flexible and have been successfully operated where long cables had to be used. The most important source of trouble is the cable itself. Inexperienced motormen frequently run over it and cause much delay as a consequence.

The third important type is the straight storage-battery locomotive. This has a maximum of flexibility, as it can run anywhere on its own power, irrespective of feed or return lines. There are, however, several limitations to the battery machine. It is restricted in its day's work by the size of the battery and by the amount of energy it can store. Owing to the weight of the battery, the locomotive can be abused by causing it to pull excessively large trips. Under such conditions energy of the battery will be expended before the end of the day. The batteries require expert and systematic attention.

### Combination Locomotive for Scattered Work

The Consolidation Coal Co. has had much experience with combination trolley-and-storage-battery locomotives. In one of its divisions about fifty of these machines have been installed. They are standard 250-volt two-motor 6-ton locomotives of the type usually used with cable reels. It has discarded these reels, and in their place has provided storage batteries. Throughout the day, whenever the locomotives are running on the trolley, they receive boosting charges. The special field for this machine is where the mining work is scattered. The locomotive can gather a few cars in one place on the battery, and then run on the trolley to some other section for a few more cars. As compared with the reel locomotive it has the greater flexibility. In comparison with the straight storage-battery machine it has a much wider range of operation, because of its high speed on the trolley and the extra drawbar pull which it is capable of exerting while so connected.

So far no mention has been made of room hoists. The Consolidation Coal Co. has found it necessary to use such machines in some parts of its mines where the grades are too heavy for locomotives. As a general rule

*Article entitled "Gathering in Coal Mines" read before joint meeting of Pittsburgh section of the American Institute of Mining and Metallurgical Engineers and the American Institute of Electrical Engineers, Jan. 21, 1921.

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I would say that grades averaging 15 per cent are about as steep as locomotives can successfully meet. It is true, of course, that locomotives have been, and are still being, used on grades much exceeding this. The maximum inclination on which I have seen a locomotive operate was 25 per cent.

### Right Type to Fit Need of Particular Mine

The big question the mining man has to solve is what type of locomotive to apply in any operation that he may have under consideration. In some mines this problem is simple, but in most of them the conditions are such that it would be feasible to install either one of two or more types of locomotives, and it is extremely difficult to determine which variety will give the best results.

Let us assume as an average condition a mine that is at present gathering with live stock. In most cases the operation will be so developed that the grades will be in favor of the load. Some of the empties will be delivered to the face by animal haulage and some will be pushed from the room necks to the face by the coal loaders. On the other hand, some of the loads will be pulled from the face by live stock, and some dropped from the face to the room necks by the men that have loaded them.

In practically all cases the loads are not taken farther than the end of the room entry by animal haulage. In most instances rooms are driven only one way from the room entry, and in consequence in few entries are there more than 6 or 8 rooms being worked. Under such conditions the live stock will average about twenty cars a day per head. In changing over to mechanical gathering, in order to make a favorable showing it would be necessary for each locomotive to replace four head of live stock. This would mean that two men with one locomotive must do the work of four men with four head of stock.

### Locomotive Should Not Serve Many Entries

It should be understood from the beginning that this result cannot be accomplished unless changes are made in the method of mining and in the condition of the mine tracks. The Consolidation Coal Co. has found in all cases where this change in the method of gathering has been made that it is necessary to improve track conditions materially in order to prevent derailments. Also the development work in the mines should be laid out so that each locomotive, if possible, can get its full quota of loads from one room entry and in no case from more than two room entries.

Another important point in changing the gathering system is to avoid increasing the length of haul from the working faces to the side track. The tendency with most mine superintendents is to believe that gathering locomotives should be able to haul farther than live stock, and they therefore expect them not only to gather as much as four head of stock but to haul these cars to a more remote side track than that to which the live stock had been delivering it.

### Storage Battery Locomotive Needed in Gas

Turning now to the question as to the precise use that should be made of each of the different types of locomotives, it may be said that an undisputed field for the straight storage-battery machine is in gaseous mines where no other type of locomotive is permissible. On the other hand, there is a field from which they are positively excluded, namely, where heavy grades against the loads are encountered. Straight storage-battery locomotives will not give good results on heavy grades, for they cannot store sufficient energy for a full day's work. Between these two limitations is left by far the biggest field, where the different types of gathering locomotives meet on nearly equal ground.

Before leaving the battery locomotive I strongly advise against the installation of any such type of machine unless several of them are installed and unless these are so disposed that a trained battery man can give every one of them regular and systematic inspection. Under general conditions I do not believe that it is advisable for the management of an isolated mine to install one or even two battery locomotives unless it happens to have a man familiar with such equipment who will give the batteries the necessary supervision. My strongest argument in support of this recommendation is the fact that under that plan we have been able to operate lead batteries in combination locomotives in such a manner that we have obtained from them on an average about 50 per cent more than their guaranteed life.

### Combination Locomotives Hard on Batteries

It should be noted that the batteries of combination locomotives are subject to a service even more severe than that experienced by the batteries of storage-battery locomotives. This is due to the fact that in straight storage-battery locomotives there is only one charge and one discharge per shift, while with combination machines the battery starts in the morning fully charged and is given boosting charges at frequent intervals throughout the day. They thus receive on the average the equivalent of at least two full charges and two full discharges per shift, which is twice the service demanded from straight battery locomotives.

In a new mine where the work will be concentrated and each locomotive can get its full quota of coal from one or two entries and where the grades are not prohibitive, I would recommend the straight storage-battery machine as being best suited to such conditions.

For non-gaseous mines the straight storage-battery locomotive has the smallest range of applicability. It should be applied to mines where the work is already concentrated or to those where the larger part of it will be concentrated within a short time and to those where the maximum average grade is under 5 per cent.

### Reel Locomotive Suited to Heavy Grades

The reel and the combination locomotives have yet to be considered. I would recommend the reel machine for maximum average grades up to 15 per cent and the combination locomotive for maximum average grades up to 10 per cent. The latter is suited to heavier grades than the storage-battery machine because its stored energy is not so closely limited. I have already advocated that storage batteries be not used unless sufficient of them are installed and operated close enough together so that one battery man can keep close watch on their care and operation. Where the number of storage batteries to be installed will be insufficient to justify the services of one man for their care, I would recommend cable-reel machines. Where there are sufficient locomotives in use to justify the services of a battery man, I would recommend combination machines. I have found these units more flexible than others because of their lower speed when running on the battery. The battery should give about 125 volts against a potential for reel locomotives of 250 or 500 volts. Experience

has shown also that fewer delays arise from failure of storage batteries and accessories than are experienced from similar mishaps to cable reels and accessories.

Locomotives with cable reels cost less than similar machines equipped with storage batteries. I have found that the maintenance cost on both is about the same, but there probably is some small difference in the power consumption of the two types. The Consolidation Coal Co. has not made any accurate tests on this point, because in general the results show that there is no appreciable difference. Our records prove, however, that the combination locomotive will gather from three to five cars more per day than will the reel type of machine. This increase more than outweighs the extra investment that must be made when the combination trolley-and-storage-battery locomotive is installed.

### System Must Conform to Mechanical Needs

So far no mention has been made of mechanical gathering except as regards that done by locomotive and room hoists. Many conveyor and scraper-loader systems have been suggested, but to date the Consolidation Coal Co. has not found any that it could apply to its methods of mining with any prospect that it would show a saving over locomotive gathering. Neither has this firm seen its way clear to change its mining systems so as to suit any of the methods suggested.

When considering mechanical gathering for a mine too much emphasis cannot be placed on the necessity of making mining conditions suitable for such gathering. For a new operation, where mechanical gathering will be used from the start, this should cause but little extra expense. For an old mine where live stock has been employed extreme care must be exercised in selecting the method of mechanical gathering best suited to the individual operation. All track must be put in good shape; the feed lines and returns must be ample for the service and adequate side tracks must be provided as close as practicable to the working faces. Furthermore, the more the mine workings are concentrated the better will be the results achieved with mechanical gathering.

Unless all these requirements are watched closely the cost of mechanical gathering will show an increase over that performed by live stock. The weight of the gathering locomotive can always be suited to the weight of the cars. Under given conditions a locomotive should gather a given number of cars per day, the weight of the cars thus handled not influencing their number. The larger the cars the larger should be the locomotive, but the number of cars gathered per day remains practically constant. Obviously the larger the car the cheaper the gathering cost per ton of coal mined.

## Wisconsin Steel Makes Single Machine to Remove, Transport and Sprinkle Water

MINES sufficiently dusty to require sprinkling, as a rule, make but little water. A part of the regular equipment of such operations is one or more water-bailing cars. In not infrequent instances as many as eight to ten men do nothing but bail water from small local sumps while at the same time an extensive spray system may extend throughout the mine for sprinkling purposes. In other operations tank cars equipped with sprinkling heads and accompanied by air compressors are used for laying dust.

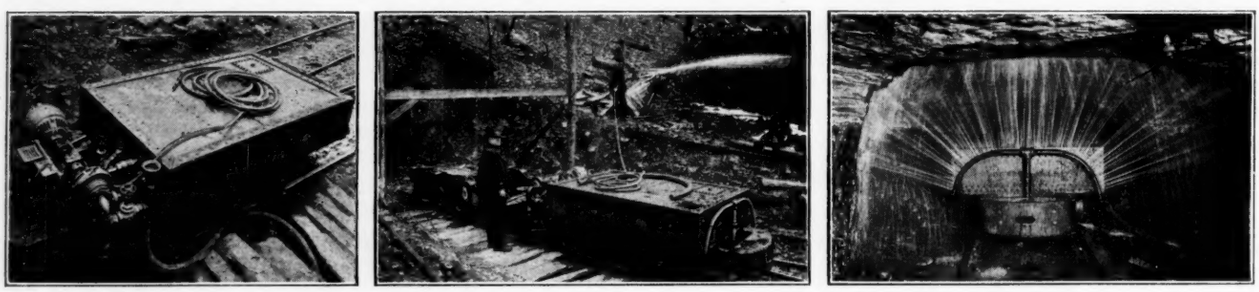
Officials and men of the Wisconsin Steel Co., at the works at Benham, Ky., have recently put into operation the combined bailing and sprinkling machine shown in the accompanying illustrations. This device is the result of the ingenuity and efforts of several people. R. A. Walter is responsible for the basic idea. Details were worked out by R. E. Galbreath, chief engineer, and the machine was built by J. J. Gregory, master mechanic, and his assistant, J. C. Fawbush, together with the regular shop forces. The total cost of the machine was slightly less than $1,100.

This machine consists essentially of three elements, a motor-driven pump, a tank and a discharge or spray head. Water may be drawn from a sump, ditch or other source, and discharged either to the tank to the spray head or to a small spray hose; or water may be drawn from the tank and discharged either to spray head or to the hose, as may be desired.

### One Man Can Operate the Machine

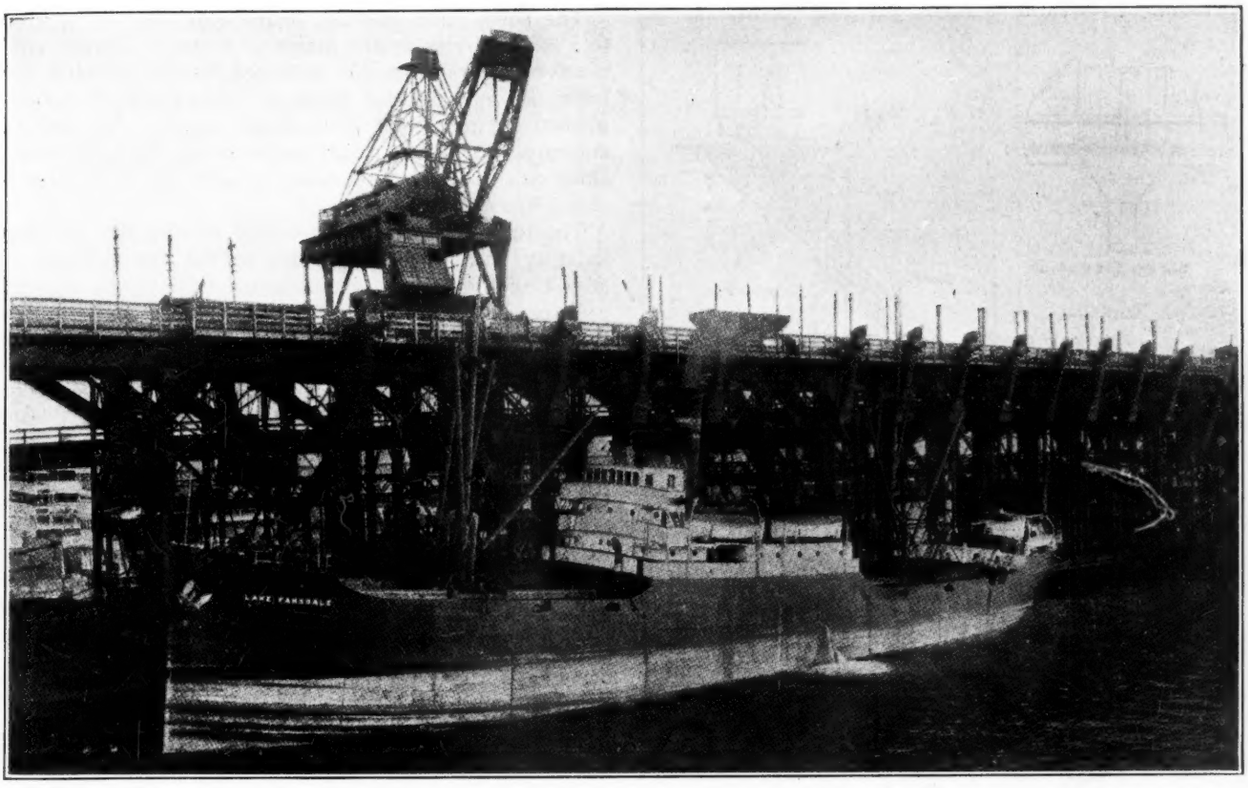
As ordinarily used this machine is coupled to a Goodman "speedy" cable-reel gathering locomotive. Only one man is required for its operation. It accomplishes two purposes. It voids the water from the wet portions and local sumps of the mine and effectively wets down the dry headings and rooms. The tank holds 600 gallons and the machine will spray 1,200 ft. of heading in six minutes. Under ordinary conditions one man can easily bail the water from and sprinkle a mine with a production of 1,500 tons per day.

That the work performed by this machine is effective may be judged from the accompanying photograph showing the sprinkler in action. Those who have seen the device in operation say that it is highly efficacious. Most mines require sprinkling, and various means have been devised and adopted to accomplish the desired results. Here, as in most other devices used in and about the mines, simplicity and reliability are cardinal virtues—both possessed by this new machine to a marked degree.



WILL RID THE SWAGS OF WATER, WET DOWN MINE PROPS AND WASH DOWN MINE ENTRIES

The machine is shown on the left bailing a surface sump, but it shows quite well how the work is done underground. Props in the hot, dry sun are apt to dry and split. A little water keeps them moist and fit. In the middle illustration the sprinkler is shown serving that office. The principal function of the machine is shown on the right—sprinkling headings—but it also washes them down, dislodging the dust and soaking it.



TELESCOPIC CHUTE ENTERING THE HATCH OF A SHIP

# Machine vs. Hand Loading of Ships With Coal for Foreign Markets

## Norfolk & Western Briquet Equipment at Lamberts Point Supplants Method of Loading Cardiff Coal—Installation Includes Fourteen Power-Operated Adjustable Chutes—Keeping the System Full of Briquets and Lowering Them Gradually Prevents Breakage

By William S. Campbell
Philadelphia, Pa.

In 1917 the Virginia Navigation Coal Co. erected a briquet manufacturing plant at South Norfolk, Va., on the Norfolk & Western Ry. The purpose of the plant was to furnish coal to the South American trade, which, because of the war, was cut off from its normal supply of Cardiff coal.

The South American trade demanded that vessels be very carefully loaded to avoid breakage of the coal, consequently Cardiff coal was loaded by hand. The Norfolk & Western Railway Co., being confronted by this problem of loading, installed on one of its piers at Lamberts Point equipment, hereinafter described, which was designed especially for the careful handling of the material.

The installation comprises fourteen power-operated adjustable chutes complete with track hoppers and chute machinery and a traveler having suspended from its boom a vertical telescope chute provided with a discharging apron at the bottom.

The method of operation is shown in Fig. 1. When loading a vessel the complete system from track hopper to discharging apron is kept full of material at all times. As fast as the material is discharged from the apron at the bottom of the chute fresh material is drawn from the hopper-bottom pier cars into the track hopper. As a result there is a gradual lowering of the material, which prevents the breakage that would surely occur if material were dropped unhindered through the system.

A view of the complete installation may be seen in the frontispiece. The fourteen adjustable chutes were designed especially for use in conjunction with the telescopic chute, but they can be, and frequently are, used without the telescopic chute when it is desired to load ships in the customary manner, breakage not being considered undesirable. They are provided with cover plates to make possible their operation at an angle greater than the angle of repose of material being handled.

Reference to Fig. 1 will show that a gate is provided at the discharge point of the track hopper, while another is at the discharge point of the sliding box, and a third

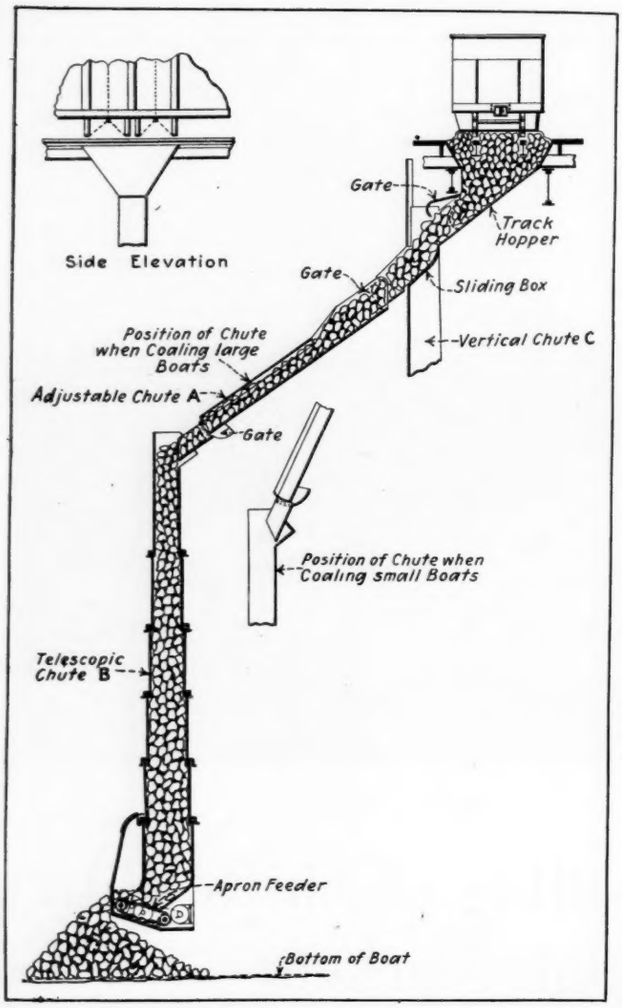



FIG. 1. BY KEEPING CHUTE FULL COAL IS NOT BROKEN

at the discharge point of the inclined chute. These gates make possible the gradual filling of the system when starting operation, thus avoiding the high velocity that material would acquire without their use. Each chute is provided with two 10-hp. compound-wound motors of 30-minute rating. One motor is used to change the elevation of the sliding box; the other for changing the elevation of the discharge end of the chute.

Electric upper-limit automatic switches are provided to prevent over-travel of these two movements when hoisting. Drum-type controllers are supported on pier railing in front of the machinery, so that it is possible for the operator to see both the machinery and the chute. The gates at the discharge points of the track hopper and the sliding box are operated by independent hand wheels, located adjacent to the machinery. The gate at the end of the inclined chute is operated from the ship's deck by means of a hanging hand chain.

The telescopic chute traveler is of the gantry type, to permit the passage of the pier cars beneath. Within the machinery house on the gantry floor are located the traversing machinery, rail-clamp machinery, and the hoisting engines for operating the boom and telescopic chute. The travel speed of the tower is fifty feet per minute, and a 35-hp. series-wound motor of 30-minute rating was provided for propelling it. Two power-operated gravity rail clamps were installed, one to grip the front rail and the other the rear rail.

The boom hoist has one drum which is spur-geared to a 35-hp. series-wound motor of 30-minute rating and a solenoid brake, motor mounted, serves to hold the boom in any desired position. Lowering is accomplished by means of a dynamic circuit. In case of emergency a gravity band brake acting upon the drum shaft can be applied by tripping a release in the operator's house.

The telescopic chute is operated by two double-drum hoisting engines. One engine serves the purpose of adjusting the top of the telescopic chute to any desired position, or holding the top of the telescopic chute at a fixed elevation while telescoping, and the other engine serves the purpose of telescoping or adjusting the elevation of the bottom of the telescopic chute. Both engines are spur geared and each is provided with a 60-hp. series-wound motor of 30-minute rating. Solenoid brakes, motor mounted, are provided with both engines to hold the load at any desirer point. Lowering is accomplished by means of dynamic circuits. Gravity band brakes acting on the drum shafts of both engines can be applied, in case of emergency, by tripping release pedals in the operator's cab.

The apron at the bottom of the telescopic chute is 3 ft. wide, is composed of $\frac{7}{16}$ in. steel double-headed slats, mounted on two strands of SS-96 chain, all with K-2 attachments. It is driven by a 7½-hp. fully-enclosed adjustable speed motor (continuous rating), which can adjust the speed of the apron to discharge from a minimum of 200 tons per hour to a maximum of 400 tons per hour.

A cab was provided at the bottom of the telescopic chute to house the signal man, whose duty it was to have been to signal to the operator in the house on the traveler when he desired to start or stop the apron, or shorten or lengthen the telescopic chute. Signaling was

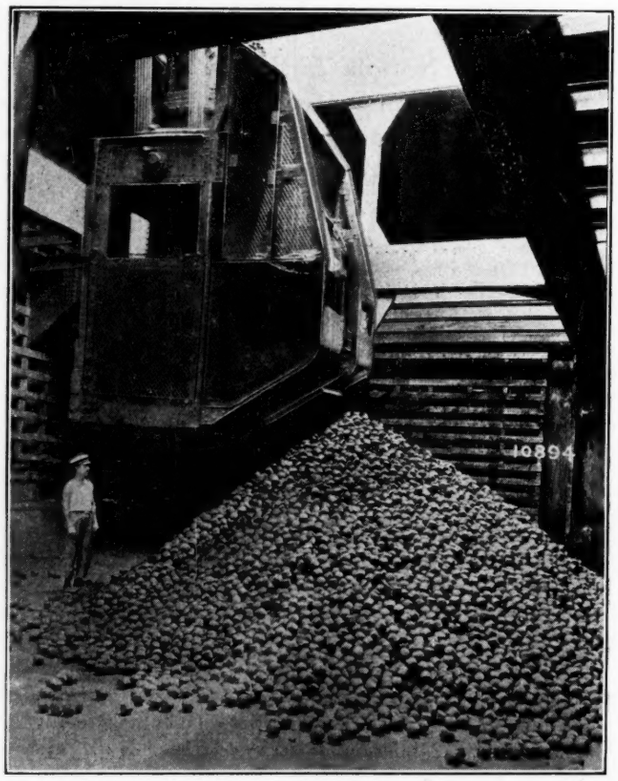



FIG. 2. DISCHARGE END OF TELESCOPIC CHUTE. AS THE PIT GROWS THE TELESCOPE IS SHORTENED

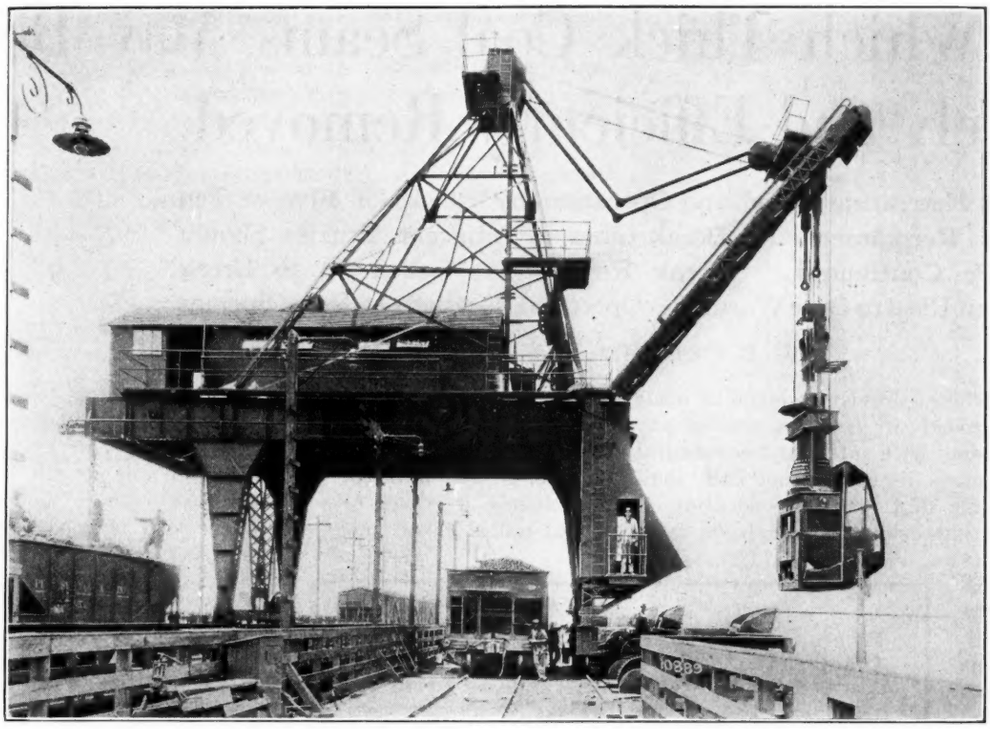


FIG. 3.

**Traveler with Hoisted Telescopic Chute**

Chute is shortened and lifted out of the way of passing ships. When a vessel has been brought into place and the traveler has been adjusted to meet it, then the telescopic chute is lowered until the discharge point of the inclined chute can be slipped into the top of the long telescoping chute, which is lowered by sections into the hold.

to have been accomplished by means of push buttons located in the cab at the bottom of the telescopic chute, with electrical connections to an annunciator located in the operator's cab attached to the traveler. In actual practice, however, it was found that the signal man could not operate satisfactorily in the cab because of the dusty atmosphere. Therefore it was found more convenient for him to walk around the hatchways of the intermediate decks, giving signals either with his hands or voice.

To begin operating the traveler is brought in line with the hatch to be filled, and the telescopic chute is lowered in a closed position until the discharge point of the inclined chute is slipped into the top of the telescopic chute. The hopper gate is then opened, allowing the coal or briquets to fill the system down to the sliding box. The sliding box gate is thereupon opened, thus allowing the material to fill up the inclined chute. The gate at the end of the inclined chute is then opened, resulting in the filling up of the telescope.

When the telescopic chute has been filled it is lengthened until the bottom reaches the bottom of the ship, the material flowing in at the top while the lengthening process is going on. The apron is now started, and the material forms a pile, as shown in Fig. 2. As the pile grows in height signals are transmitted to the operator in the cab (on the traveler) to hoist the bottom of the telescopic chute.

The motor for the telescopic engine and the motor for the apron are so interlocked as to prevent danger of shortening the telescopic chute against a column of coal without operating the apron. The apron can, however, be operated independently of the telescopic engine. The telescopic engine can lengthen the telescopic chute without operating the apron, but the interlocking feature prevents the shortening of the telescopic chute without operating the apron.

Electric upper-limit automatic switches are provided to prevent over-travel of the three hoisting engines in the hoisting directions. The success of the equipment is proved by the quite small number of briquets broken.

A close-up view of the traveler, showing the telescopic chute in closed position and hoisted to clear ships, is given in Fig. 3. In Fig. 4 retouching of the photograph more clearly illustrates the equipment.

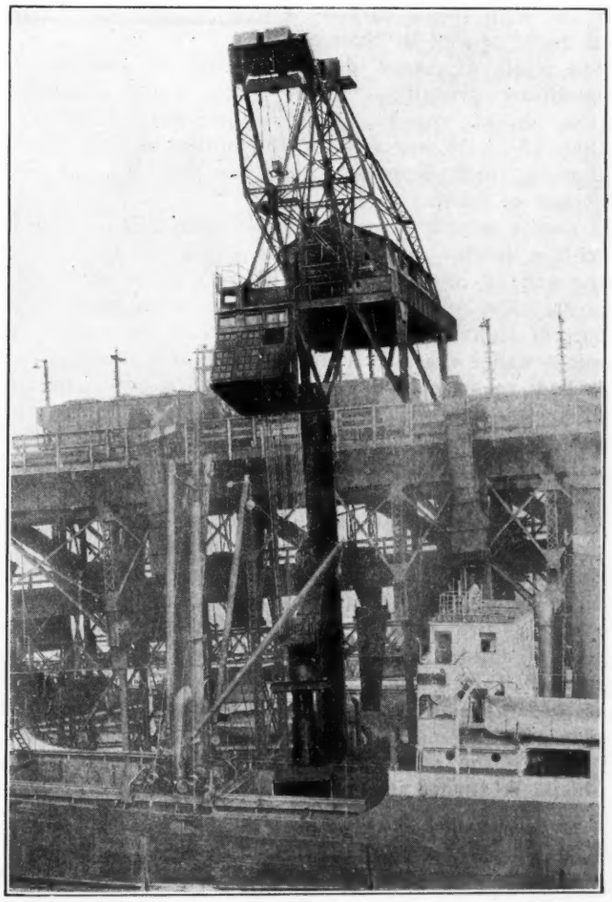


FIG. 4. FRONT VIEW TRAVELER AND LOADING CHUTE

# Ways in Which Thick Coal Seams May Be Safely and Efficiently Removed*

## Use of Retreating Panel and Operation by Blocks of Five or Ten Rooms Recommended—Break Lines in Adjacent Entries Should Not Be Continuous—"Break Rows" Not Relied On to Break Roof but Used to Give Warning—Operating Methods at Rock Springs

BY G. B. PRYDE† AND R. A. MAGRAW‡

IN LAYING out a new mine provision should be made for the ultimate recovery of as much coal in any given bed as is consistent with safety and economical mining. Though each mine district, if not each individual mine, has problems that make the adoption of any hard and fast rule impossible, certain basic principles are adapted to practically all conditions. One of the most vital is the provision for barrier pillars of ample dimensions to protect all haulage roads and permanent airways throughout the life of the property.

**Where coal is thick, 6 ft. of the seam is mined first. Later 5 or 6 ft. more is blown down, but the first slice is kept 30 to 40 ft. ahead of the second, so as to insure the loaders of steady work should the cutters fail to keep the place cut and so as to afford an opportunity for setting machine jacks. The third and last slice is left in place until the pillar is drawn, the coal being shot down and loaded with the pillar coal on the retreat.**

Where conditions permit, room or butt entries should be driven on the strike or slightly to the raise, with rooms turned at right angles to them. The width of rooms and room pillars is governed by conditions prevailing in the mines under consideration. A safe rule is: In advancing, extract not more than 25 to 35 per cent of the entire bed; in exceptionally thick deposits much less than 25 per cent should be taken.

Rooms usually vary in length from 250 to 350 ft. with a barrier pillar of not less than 80 ft. between the end of room and entry above. Entry and room crosscuts should be driven on sights with room crosscuts at right angles to the direction of the rooms. In mines under excessively heavy cover or where the roof is bad, rooms should be driven narrow and a barrier pillar left at every fifth to tenth room. This barrier should be of such dimensions that one or more rooms, with pillars of usual size, may be turned through it when the barrier is no longer required.

Two of the advantages of such a barrier are the protection of the panel against peaking of roof load during pillar extraction and the easy closing of the entry in case of fire. Where economic conditions permit, it is preferable to adopt the retreating panel system of mining. In the case of coal that outcrops, and even in cases where no outcrop is exposed, it is preferable to commence pillar extraction on the high side of the mine.

Where the retreating panel system is used, rooms should be turned in blocks of five to ten on the inside end of the uppermost panel, and, as soon as this block of rooms is completed, the pillars should be attacked and another block of rooms started on the same entry outbye. Until a break line of appreciable length is established, it is well to hold back the turning of additional rooms on an entry, unless the roof is good and the structure of the coal and roof is such that danger from caving, fires and squeezes is minimized.

When extraction of a block of pillars is begun the upper outer corner of the pillar in the first room is lopped off at an angle of 45 deg. with the entry. Successive slices are taken until the face prolonged will intersect the upper outer corner of the second pillar when work at the same angle is there commenced. This operation continues until the break line thus established extends from the head of the pillars being robbed to the head of the rooms from the entry below.

### BREAK LINE OF ADJACENT ENTRIES STEPPED

In the meantime, rooms may be started on the inside end of the entry below, so that they will be completed at about the time that the chain pillar on the first entry is attacked. As soon as the chain pillar on the first entry has been drawn back 50 to 100 ft., one or two rooms on the second entry may be driven through the barrier pillar and extraction on the second entry begun. Not more than two rooms should be driven through the barrier pillar at any one time, and the break line on the first entry should be at least 150 to 200 ft. in advance of the break line on the second entry.

Where roof conditions permit the track can be carried square across the pillar end and moved down as the pillar retreats; but where the roof is bad, it is necessary to crosscut the pillar and leave a small stump of coal to protect workmen from caves. Most of this coal can be recovered before the final room settlement occurs, but usually a small amount is lost each time the roof breaks. Where this plan is followed, room No. 1 extracts pillar No. 2, and so on. The miners thus are not forced to work under the loose end, as they would if the tracks were turned in the opposite direction.

In mines where the retreating panel system cannot be

*Paper presented at the February meeting of the American Institute of Mining and Metallurgical Engineers, New York City. Title of paper was "Pillar Drawing in Thick Coal Seams."

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‡General superintendent, United States Fuel Co., Hiwatha, Utah.

adopted the same general rules as to width of rooms and pillars, spacing of crosscuts, and plan of procedure for pillar extraction should be followed. Only under dire necessity should the extraction of pillars be commenced on an entry containing working rooms on the inbye side. Nor, unless ample barrier pillars are provided or some peculiar natural conditions exist, such as a fault or a thinning of the bed, should pillar extraction be started in the middle of the mine.

### Thick Coal To Be Extracted Under Heavy Cover

In Carbon County, Utah, the coal is from 7 to 30 ft. thick; the cover rises rapidly from the outcrop to 1,500 to 2,500 ft. The coal is bituminous and furnishes a fine steam and domestic fuel. For years the formation was classed as Laramie-Cretaceous, but recently it has been reclassified as Mesa Verde. In the Black Hawk and Mohrland mines the coal is massive in structure, seldom showing either vertical or horizontal cleavage. It is extremely hard and dense, and breaks with a distinct conchoidal fracture. The bed is clean throughout. Overburden is composed of alternate layers of sandstone and shale, the immediate roof being a massive sandstone about 125 ft. in thickness.

The average dip of the coal floor is about 3 per cent, and entries are driven on sights at an angle of 45 deg. to the strike. Room entries are driven 12 ft. wide and rooms 22 ft. wide with a 50-ft. pillar. Room crosscuts are spaced 100 ft. apart and driven on sights. A 50- to 60-ft. chain pillar, with crosscuts 125 ft. apart, is maintained between the main and back entries. A barrier pillar from 100 to 150 ft. thick, according to cover, is provided between the tops of rooms and the back entry of the level above.

### In Rooms the Seam Is Removed in Three Slices

The coal is machine-cut to a depth of 6 ft. and is shot to a height of 6 ft. in the first bench. Five to seven holes, charged with an average of two and one-half sticks of 1½-in. ammonium-nitrate permissible powder, are required to break down the face. The practice is to keep back 30 to 40 ft. of the second bench at all times, not only to insure a more stable supply of coal for the loaders but in order that shorter jack pipes may be used with the mining machines. The second bench is shot 5 to 6 ft. in thickness, making the ultimate height of the room 11 to 12 ft. The remainder of the top coal, ranging from 8 to 15 ft. or more, is brought back immediately in advance of the line of pillar drawing.

Before pillar extraction was begun a series of parallel lines conforming to the 45-deg. break line were projected at 50-ft. intervals. Wherever one of these lines intersected a pillar, a vertical mark was painted, and the lines were numbered consecutively outward, each line carrying its number wherever encountered, hence the relationship of any retreating face to that of all the others could be told by noting the nearest numbered line.

### Precautions Adopted to Isolate Squeezes

Maps of pillar workings are extended monthly. The mine foreman not only has a copy of this map but is furnished also with a blueprint of the pillar section drawn to a larger scale than the regular pocket map. On this is shown the exact relationship of the retreating faces to the uniform break line.

At first, progress was slow, for work could be started

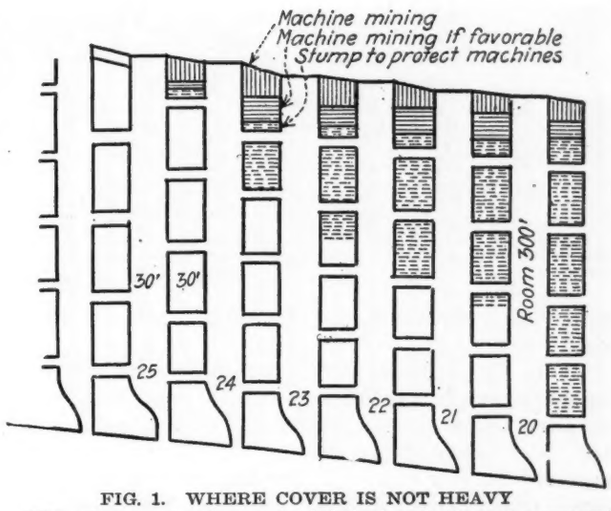



FIG. 1. WHERE COVER IS NOT HEAVY

When the room has been extended the length planned a crosscut 15 ft. wide is driven by machine through the pillar at the face. If the roof is strong another 15 ft. may be removed from the end of the pillar by machine; otherwise, as in room 25, a crosscut must be driven in the pillar, leaving a 7-ft. slab to protect the machine man. By making 15 ft. cuts and leaving 7 ft. slabs, the pillar may be withdrawn. These 7-ft. slabs can be removed by hand mining while the next crosscut is being cut by machine.

on only one pillar; but by working two shifts this first pillar was soon brought down far enough to permit starting the second, and so on until the break line extended from the back entry of the level above to the chain pillar of the entry upon which the pillars were working. It was not considered advisable to carry a continuous break line through the pillars on two entries, hence when extraction was commenced on the second level an offset of 100 ft. was maintained between the two break lines.

Rooms from the lower level are driven through the barrier pillar one at a time as the line of retreat above permits. This insures a large block of solid coal for protection should a squeeze start in either section. Work is so planned that the top level will be about finished when work is begun in the third, so that no more than two or three entries will be worked at the same time.

Machines were used at first, but it was soon deemed too dangerous to undermine the coal either by hand or otherwise. Top coal is kept about 20 to 30 ft. in advance of the pillar faces. Props 6 in. or more at the small end are set under the lip of coal in order to prevent falls of material that may have become loosened by shots or by strain. No effort is made to set break rows, the timber being used simply for its warning effect when the roof is working for a break. Much of the timber is salvaged, but the height is so great that a slight subsidence breaks props and renders them valueless, except for use as ties or cap pieces.

### With 2,000-Ft. Cover Nine-Tenths Removed

Whenever the roof breaks, pillar faces are invariably lost. Sufficient warning usually is given to permit the loading of loose coal and the removal of track and other material to a safe place. Caves seldom extend beyond the end of the pillar. Places usually settle within thirty-six to forty-eight hours, so that work can be resumed. If pillar faces are lost, it is necessary to drive crosscuts, starting about 10 ft. from the cave before continuing retreat. Small stumps remaining after completion of crosscuts are robbed of as much coal as possible; if it is unsafe to remove all the coal, stumps are shot in order to enable the roof to fall. In

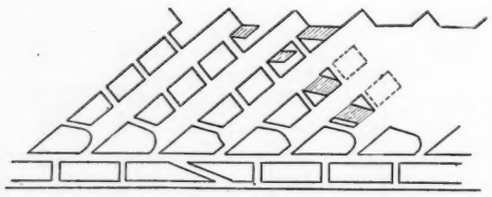


FIG. 2. WITH ROOMS DRIVEN AT ANGLE TO PITCH
In this scheme the pillar is removed by crosscutting, the crosscuts being driven on the strike and not at right angles to the room.

many instances practically the entire stump is recovered.

Up to date extraction has been highly satisfactory. In one area of over 10 acres, with coal 30 ft. thick in places (the average thickness being about 24 ft.) and with about 2,000 ft. of cover, the extraction exceeded 90 per cent. In another area of about the same acreage with thinner coal and less cover, the extraction was about 85 per cent, the necessity of leaving up some top coal to support a friable roof causing loss. In a third area of about four acres, with coal 20 ft. thick and cover increasing from the outcrop to a thickness of 800 ft., the extraction has been as near complete as conceivable.

### Breaks When Over Half Acre Is Cleared

As some uneasiness was felt with regard to the possible action of the roof, considerable areas were extracted clean, but the roof showed no tendency to cave even when props were pulled or shot. After a break line 200 ft. long developed and the space worked out was 150 ft. wide, caves from 5 to 10 ft. deep occurred. No further caving took place until the open area was approximately 250 by 200 ft.

In the Mohrland mine the roof arched above the cave, and large openings remained between the caved material and the dome. The roof being massive sandstone, the fragments of rock were extremely large and for the most part angular. After this cave the roof continued to break at intervals of about 50 ft., the caves going higher each time; at a height of about 90 ft. the inspection party was stopped, but from rays of an electric hand lamp the cave seemed to be completely choked about 50 ft. higher.

It is probable that caving extended much higher than this, but as little weight has been shown on pillars it is thought that the void has been closed. In the Black Hawk mine, the roof on experiencing its second cave broke through to the surface, though only about 100 ft. had been cleared of coal, the crevice being about 50 ft. wide by 200 ft. long. The miners worked for several weeks by daylight.

The roof over the pillar section of the Hiawatha mine is composed of shale, with a small bed of coal (resulting from a split of the main seam) about 20 ft. above the main measure. The caved material is finely-broken shale and coal, and apparently the cave chokes completely, as no undue pressure has been noted on the pillars.

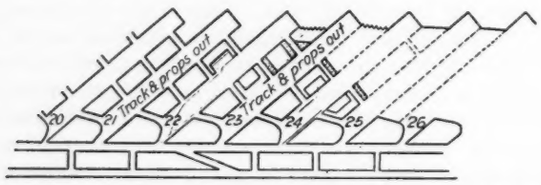



FIG. 3. PILLARS ARE DRAWN FROM ALTERNATE ROOMS
After rooms 20 to 26 are driven up the track and props are removed from alternate rooms 21, 23 and 25 and track is laid along the high side of the pillars which are on the low side of rooms 20, 22, 24 and 26. The pillars are removed by making machine crosscuts with thin slabs left to protect the machine man, as in other cases.

In this method of mining absolute adherence to plan is required, and while there is no certainty that trouble will not develop, it is believed that whatever success has been attained has been due to this strict adherence to the breaking line. A uniform break line insures even distribution of load over all pillars and prevents the peaking of roof pressure in one or more places, as is the case where the break line is jagged and irregular.

### Drawing Pillars in Rock Springs Field

In the Rock Springs field the system above described is modified to suit local conditions. The method followed when the rooms are driven up the pitch is shown in Fig. 1. The rooms are driven for a distance of 300 ft. on 60-ft. centers, the rooms being driven 30 ft. wide, leaving a 30-ft. pillar.

When the room has been driven up its predetermined distance, a place 15 ft. wide is driven across the top end of the pillar on the strike of the seam, mining machines being used for that purpose. When this block is taken out the remainder of the pillar is extracted by hand labor. The roof generally caves immediately after each successive block is removed.

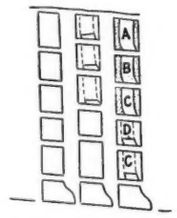



FIG. 4. COVER LIGHT AND ROOF WEAK
Here the pillars A, B, C are split simultaneously by machine cuts and the small pillars left are removed by pick miners. By this means the coal is extracted with extreme rapidity.

Fig. 2 shows the method employed where rooms are driven on an angle to the pitch, the pillars being recovered in blocks of four. A breaking line is maintained by keeping the outside pillar in the lead. When roof conditions are good and cover is light 75 per cent of the pillar coal may be extracted with mining machines and the remainder by pick mining. In this case a place 30 ft. wide is driven through the pillar, a 7-ft. stump being left on the upper side. This stump is then recovered by hand mining while the machine is cutting another 20-ft. place below the first one, leaving a 7-ft. pillar as before.

In Fig. 3 the rooms are driven at an angle to the pitch, but the props are drawn out of alternate rooms and a branch track is laid up the high side of the pillar. Both pillars are then recovered from the same room. This system is workable only where the roof is strong and reliable. It lends itself readily to machine mining, as does the system shown in Fig. 2. This method insures a fairly complete extraction of the coal and in alternate rooms all timber can be recovered.

Fig. 4 shows a system that lends itself more readily to thick pillars. It is adapted to places where the roof is weak. By working blocks A, B and C simultaneously a rapid recovery of the pillar coal is insured. The mining machine cuts these blocks entering by tracks in each crosscut; the small ribs are recovered by pick miners. This splitting system generally is followed on retreat in the recovery of the entry pillars.

In drawing pillars in thick beds where spontaneous combustion is likely to occur, no pillars are taken out until the boundary is reached; then the pillars are removed in blocks of three, a solid block being left at

each sixth room to facilitate sealing off the workings in case of fire. Rooms are driven on 65-ft. centers when the cover is light, the rooms being 21 ft. wide and the pillars 44 ft. thick.

The work is started on the pillar nearest the face

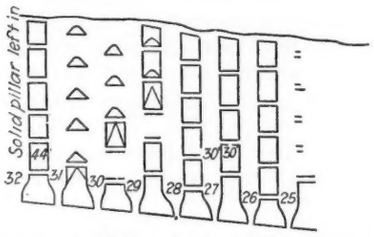



FIG. 5. WHERE COAL TENDS TO FIRE

Rooms 29, 30 and 31 are robbed, and the adjacent rooms are left with their pillars, so that the area can be sealed off should heating in these rooms occur.

of the entry, three men generally working on each side of the pillar, taking off successive skips as shown until the working parties meet in the center of the pillar; stumps are left to prevent the rock from sliding when caving occurs.

The withdrawal of pillars on the panel system is best accomplished as shown in Fig. 5, except that it has been found advisable to draw back the pillars on one panel in a uniformly straight line. Much of the success of drawing pillars depends on systematic work along predetermined lines, and, when the roof is strong, the withdrawal of standing timber is highly necessary if successful results are to be obtained.

## Welding Machine Having Self-Controlled Current Affords Only a Short Arc

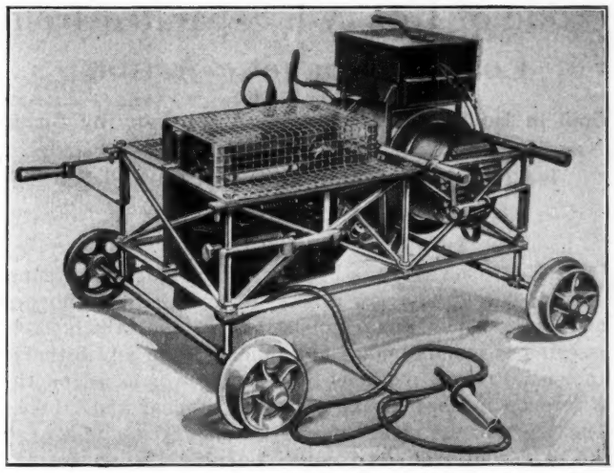
THE new electric-arc welding machine shown in the accompanying illustration has been especially designed for rail bonding and track work. The fundamental principle involved is that of uniform heat per unit area of weld. This is accomplished by means of a short arc and an automatically controlled current.

It is generally conceded that the best electric welds are made with a short arc. This is because the heat is localized, the metal flow is well controlled, and the weld is never burned or hard. In the machine illustrated the potential across the arc is only 18 volts. Consequently it is impossible to hold a long arc, and when the operator has acquired the knack of short-arc welding, which is not a difficult matter, he produces uniformly good welds.

Current control is accomplished by means of a solenoid operating in conjunction with a carbon pile. During welding this regulator automatically maintains the current at a practically constant value regardless of line variations. Short-circuit current is held to within about 10 per cent of welding current. Heat is controlled within 4 per cent.

This plastic-arc rail-bond welder is unaffected by line surges. It is in reality a dynamotor using the metallic-arc process. The device is wound for two voltages; one machine operates on 350 to 650 volts direct-current and the other on 150 to 350 volts.

Although the machine is specifically designed for and adapted to rail bonding and track work it also is valuable for general repair and shop welding, as it has been made for continuous service at full rated welding current. The Wilson plastic-arc rail-bond welder here described and illustrated has been developed by the Wilson Welder & Metals Co., at the request of the Ohio Brass Co., of Mansfield, Ohio, by which firm the welders are distributed.



MACHINE CONTROLS CURRENT AND MAKES GOOD BOND

By means of a solenoid operating in conjunction with a carbon pile the current is controlled at a practically constant value despite line surges.

## May Provide That Only Closed Lamps Be Used Hereafter in British Columbia

BY AN amendment to the Coal Mines Regulation Act of British Columbia which has been introduced to the Legislature by the Honorable William Sloan, Minister of Mines, the use of open lamps in coal mines in that province would be forbidden in all cases.

The opening lines of the proposed amendment contain the essence of the change. They read: "No lamp or light other than a locked safety-lamp of a pattern approved by the Minister of Mines shall be allowed or used underground in any mine."

As a matter of fact the regulations have been so strict of late years as to the use of open lights in coal mines that they have seldom been found underground. Only where the gas content of the air has been infinitesimal have they been permitted at all. As a result the large collieries have largely adopted electric lamps.

Now, however, the Minister of Mines has decided that open lamps must go altogether. He has concluded that the danger to the underground workers is too great to warrant their use under any circumstances. Even where conditions seemed absolutely safe there have been instances of men receiving burns more or less serious because of the unprotected flame.

It is expected that when the new regulation comes into effect on July 1 next, the result will be the general use of electric lamps in British Columbia coal mines.

FLOTATION OF COAL is being tested by *La Compagnie des Mines de Noeux*, the method used being that of the *Minerais et Métaux*, a subsidiary of the Minerals Separation, Ltd., of London, England. The experiments will be made with a plant having a capacity of 100 metric tons a day, the object being not to reduce the ash in the good coal but to treat slate and bone coal and obtain from them combustible material and to take the middle products from the washer containing 25 to 35 per cent of ash, reducing the ash to 2 to 7 per cent and using the product for briquets, coke or powdered coal.

# Oxide of Iron Ash Separated from Coal by Magnetic Action

## Coal in Boiler Ash Reclaimed in Germany by Sizing and Passing Over Magnetic Separators — Oversize Is Crushed, Resized and Magnetically Picked

BY H. O. HERZOG
Berlin, Germany

THE Gruson Werk, a branch establishment of Krupp, has developed a new process for reclaiming unburned coal from ashes and combustion residue which it is asserted is much simpler and quicker than any hitherto known. Present methods of cleaning are based on the difference in the specific gravities of coal and clinker. The new process makes use of the magnetic qualities of the oxides of iron into which burning transforms the pyrites. These oxides are retained in the clinker. The basic principle of the process is the fact that, owing to its content of ferro-oxides, the clinker responds to electro-magnetic action while the coal does not.

In the accompanying illustration is shown a plant that has been designed for treating combustion residue at the rate of ten tons per hour. The ash carted to the plant is first put through the screen (1) with meshes 3½-in. square. Pieces of unburned coal that do not pass through this screen are separated by hand from the clinker and carried away separately. All small pieces pass into the hopper (2) underneath and thence through the feeder (3) into a bucket elevator, which lifts them to the top of the square building containing the separating plant.

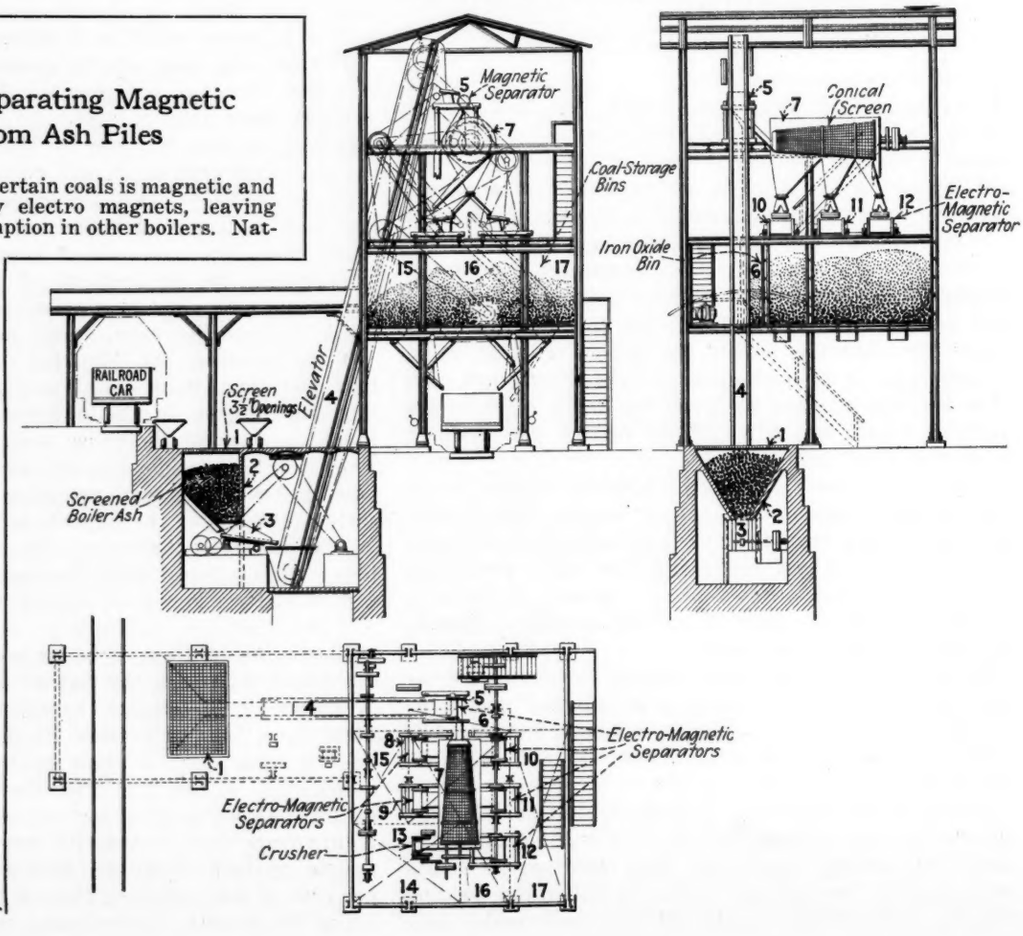
The next step is the separation of particles containing iron from the balance of the material. This is performed by the iron separator (5). The clinker sorted out by this means falls into the bunker (6), while the remaining material goes into a conical revolving screen with different sizes of mesh. This screen separates the ash into four different sizes, 0 to $\frac{5}{16}$, $\frac{5}{16}$ to $\frac{3}{4}$, $\frac{3}{4}$ to $1\frac{3}{8}$ and over $1\frac{3}{8}$ in. The first three sizes are charged onto electro-magnetic separators (8, 9, 10, 11 and 12), while the material over $1\frac{3}{8}$-in. size is taken to the crusher (13) and reduced to a smaller size.

Separation of the clinker from the coal is performed by the electro-magnetic action of the drums, on the surface of which the clinker is retained to a certain degree, while the pure coal is thrown out by centrifugal force. The electro-magnetic action to a limited extent counteracts the centrifugal force produced by the rotation of the drum. This results in depositing the coal and the clinker in different places. In the bins they are kept apart by a wall. The pure coal is collected in compartments 15, 16 and 17, which are provided with chutes at the bottom, by means of which it can be loaded onto trucks and carted away.

It has been found that a considerable amount of coal can in this way be recovered from combustion residue. This amounts to as much as 30 per cent from some stationary plants and 40 to 45 per cent from locomotives. It is asserted that this new process in addition to other advantages has the merit that coal particles of every size can be recovered, whereas small-sized particles are lost by the wet treatment hitherto used. Furthermore, the clinker obtained is absolutely free from coal and therefore better adapted for commercial use.

### Plant for Separating Magnetic Ash from Ash Piles

Most of the ash in certain coals is magnetic and can be removed by electro magnets, leaving pure coal for consumption in other boilers. Naturally complete combustion is better than any such reclamation methods, but unfortunately it is hard to stoke boilers so that there will be no loss. One would imagine that it would be hard to make this system pay except where the loss of coal was large and the distance to be hauled short. In fact, it hardly seems an operation suited to railroad transportation with its large minimum charges. On a modest scale the system might be found readily available to the needs of a relatively small boiler plant at a coal mine.



# Fuel Research Bureau Advocated to Solve Problems Of Scientific Use and Handling of Coal

## Lancashire and Cheshire (England) Coal Research Association, Suggested as Model, Resembles U.S. War Research Board, but Is Broader in Scope—Has Coal-Testing Plant and Laboratory and Also Makes Commercial Investigations—Plan for American Commission Outlined

BY F. R. WADLEIGH
New York City

AT A recent meeting of the Manchester (England) Geological and Mining Society a most interesting paper was read on "The Organization of the Lancashire and Cheshire Coal Research Association," by R. A. Burrows and F. S. Sinnott. The contents of this paper should be brought to the attention of every coal operators' association in this country, giving as it does a clear and detailed account of one most promising development toward solving some of the problems of coal mining and coal utilization.

The formation of the Research Association apparently was furthered by the work done by the Fuel Research Board of the Department of Scientific and Industrial Research, organized by the British Government in 1916 as a war measure, but kept in existence since the end of the war. The work of this department was somewhat similar to that of our War Research Board in this country, but was of broader scope, including the entire coal industry, production as well as utilization.

The Fuel Research Board of the British department included in its membership some of the ablest technical men in the country, and valuable and most promising results were obtained through its researches, more especially along the lines of fuel utilization, with particular reference to the use of low-grade coals, carbonization and improved methods of combustion. The department now has a well-equipped coal-testing plant and laboratory near Greenwich, and is carrying on further investigation of a more permanent nature on a commercial scale, as well as in the laboratory.

The British Association for the Advancement of Science also appointed a Fuel Economy Committee in 1916. This committee stated in its second report (1919) that "The resources, both of existing laboratories which have been established in this country for the special investigation of fuel problems, and of other laboratories where the technique of the subject has been developed, might be utilized more than they are in this connection, and the time is ripe for the organization of a scheme of systematic co-operative research, aided by national funds, in which all such laboratories may participate."

Previous to the formation of the Lancashire association somewhat similar research organizations had been formed in South Wales and Yorkshire, and numerous bulletins and reports of their investigations had been published, all of value to both mine owner and coal user. To give an idea of the kind of work being carried on by the Lancashire association, the following list is given of some bulletins and papers already, or shortly to be, printed for distribution:

"Ten Lectures on Organic Chemistry with Special Reference to Coal."
"The Sampling of Coal."
"Notes on Coal Analysis."
"Coal Dust and Fusain."
"Determination of the Carbon Dioxide in Coal."
"A New Characteristic for Coal—The Agglutination Curve."
"A New Method for Determining the Spontaneous Ignition of Solid Fuels."
"The Organic Constituents of Coal."
"The Calorific Value of Coal."
"The Composition of the Chief Seams of the Lancashire Coal Field."

In addition to the regular research work, special confidential investigations are carried on for any member of the association. The investigations now being pursued include complete chemical analyses and calorific value determinations of each seam from top to bottom, coking properties, relative friability, composition of the ash, character and composition of the associated strata, heating of coal, etc.; every effort being made to suggest commercial uses and methods of treatment for the various materials and conditions.

According to recent advices from H. O. Herzog, of Berlin, a German scientific society for coal research has been organized in the form of a limited liability company, with the object of developing and testing new methods and improvements to be used in the manufacture of coal products. Twenty-one mining companies of the Dortmund district have joined the society. These companies are thus enabled to save expenses for individual research work, the work being carried on a more efficient and extensive scale. The company's plant will be modeled after the Coal Research Institute at Muhlheim. Three laboratories are already completed.

### MEAGER APPROPRIATIONS LIMIT RESEARCH

In this country, as far as the writer knows, work of the kind described is left entirely to government or state departments and to a few individual companies; none of the various associations of coal men have interested themselves, as a body, in the technical possibilities of coal, as distinguished from the purely commercial side. Of course, the U. S. Bureau of Mines has done and is doing excellent work along the lines mentioned, but some part at least of its work has to do with metals and other minerals and with strictly government work. Furthermore, the bureau's investigations are limited by the amount of money allotted to it by Congress, which so far has been meager and not in any degree commensurate with the importance of the work.

In October, 1918, shortly before the Armistice, the matter of appointing a Fuel Research Board was brought to the attention of the director of the Central Bureau of Planning and Statistics at Washington, Dean E. F. Gay, who requested me to prepare a memorandum on the subject for submission to the President, to include a brief outline of the proposed plan, with a

tentative list of members and some subjects for investigation. The question was never submitted to the President, as, of course, the Armistice stopped all new government activities, and it was not thought advisable to bring the matter up at the time under the circumstances existing.

The memorandum submitted was as follows, omitting the list of names suggested:

### Proposed National Fuel Research and Conservation Commission

*(For the Investigation of Technical and Economic Questions Connected with the Various Fuels)*

This commission to be made up of men of wide reputation and known ability and accomplishment in their respective lines of work, who would serve without compensation and whose private researches would be available for government use. Commission to have seven members and a director or chairman, the latter preferably on salary; a trained investigator and executive, the best man obtainable in the country.

To enable the commission to make researches along all lines, it should have a building at some central point (not Washington), to be erected by the government and equipped with all necessary appliances for actual commercial testing and research work, not merely laboratory equipment.

A partial list of subjects open for investigation—all of them of importance to the country, its fuel producers and fuel users:

*COAL*

*Production and Mining:*
Mining methods, present and future.
Mining systems.
Costs of production.
Preparation—Washing, inspection, screening.
Coal cutters and conveyors.
Haulage.

*Economics:*
Methods of government control of fuels, U. S. and foreign.
Coal trade, pre-war and after the war.
British coal situation.
French coal situation.
Italian coal situation.
Scandinavian countries' coal situation.
Holland and Belgium coal situation.
South American coal situation.
Labor at coal mines, efficiency, etc.
Public power schemes, consolidation of plants, etc.
Coal production, economics of.
Coal requirements.
Export trade.
World's coal consumption.
World's coal production.
Germany, coal situation after war.
Valuation and taxation of coal lands.
Government ownership of mines.
Coal and the railroads.
Coal traffic on inland waterways.
Regulation of fuel prices.
Public education on fuel questions.
Education of fuel experts.
Conservation of coal, economics.
Steam power plant, its economics.
Coal, distribution methods.

*Distillation:*
Byproducts from coal.
Oils from coal.
Low-temperature distillation processes.
Byproduct coking coals.
Byproduct coke ovens, types and operation of.
Coke, production, consumption, distribution, uses.
Artificial gas industry, fuels, methods, etc.
New processes.

*Combustion:*
Steam boilers and furnaces, combustion methods.
Surface combustion.
Gas-firing boilers.
Fuels for internal combustion engines.
Pulverized coal.
Colloidal fuel.
Mechanical stoking.
Stationary Boilers.
Locomotives.
Ships.
Conservation of coal, technical.

*Transportation and Handling:*
Coal storage and spontaneous combustion.
Coal-carrying ships.
Coal-carrying railroads of the U. S.
Transportation and distribution of coal, system of.
Mechanical bunkering appliances.
Coal loading and discharging at tidewater and lakes.
Coal piers and docks.

*Coal Fields:*
Coals of the Appalachian Field.
Our high-grade bituminous coals.
British coals, competitive.
South American coals and development.
Coals of the United States, fields and classification.
Coals of the United States.
Coals of France and their development.
Coals of Spain and their development.

*Coal, Classification of:*
Domestic—Domestic fuels.

*Railroads:*
Locomotive fuels.
Fuel consumption of railroads.
Transportation of coal and coke.

*Power Plants:*
Use of coal at power plants, consumption, conservation, etc.
Power production from coal.
Power production from oil.

*Coal, Marine Use:*
The world's bunker coals, kinds, sources, distribution and use.

*Coal, New Uses for and New Methods of Using.*
*Motor Fuels.*
*Metallurgical Fuels, Solid, Liquid and Gaseous.*
*Briquetting of Coal.*
*Coal for Chemical Processes.*
*Coal for Industrial Processes.*
*Fuels Other Than Coal, Oil and Gas, Their Derivatives.*
*Fuel Economy in the Manufacture of Iron and Steel.*

*Chemistry and Physics:*
Nature and modes of decomposition of the ammonia-yielding nitrogenous constitutents of coal.
Constitution of coal, micography and physical examination of coal and coke.

*Producers, Gas, Use of and Possibilities of.*
*Geology*—Systematic examination of United States coal fields.

*Petroleum:*
Oil vs. coal as fuel, uses, etc.
Distillation processes and products.
Fuel oil, production and consumption and combustion processes.
World's fields, production, etc.

*Oil Shales:*
Deposits, location and description.
Development, distillation processes and products.

*Lignites*—Development and uses.
*Peat*—Development and uses.

Our purpose in bringing the whole question to the attention of those interested in fuel production and use in this country is to suggest to the larger United States coal associations, both operators and wholesalers, the advantages to them of emulating the action of the British associations by establishing their own fuel-research bodies or one central research association for all. The problems of the industry are so many and so important, especially today and for the future, that all questions pertaining to fuel and its use need careful and thorough investigation by men of special training and qualifications.

Such an association as is suggested would be available not only for research work but would actually serve as a bureau of information on all current technical questions; as a consulting or advisory department to which each member could apply for any desired data. Some idea of the possible scope of the subjects that would be suitable for investigation may be had from the partial list given in the foregoing memorandum.

The cost of such a research bureau would be comparatively small to each member and would be a legitimate charge on the cost of coal. The work of the association need not interfere in the least with

that of the Bureau of Mines and other government departments, but could be made of great help to them in numerous ways.

One of the world's greatest authorities on fuel utilization and conservation, Prof. W. A. Bone, in an article on "Research Upon the Chemistry of Coal and Combustion" (*Combustion*, September, 1920), emphasizes the importance of fuel research and its value to any coal-producing country. Professor Bone writes:

"It is of the utmost importance to any coal-owning nation that there should be available for the use of its fuel technologists a complete knowledge not only of the characteristic qualities of the coals found in the different fields but also of the variations in the chemical properties of the coal as actually found in each individual seam throughout a given field. Such a detailed chemical survey of the principal seams in a particular coal field can be undertaken much better by a staff of chemists on the spot, who have an intimate knowledge of local conditions and who devote their whole attention to the work, than by the officials of some central institution which may perhaps be hundreds of miles away. Hence there ought to be established in every important coal field a well-equipped research station for the investigation of the special features and uses of the coals produced in the area of the proper correlation of the various seams. Such stations ought to be maintained at the public expense, and the reports issued therefrom should be made available without restriction to all users of coal."

### Co-ordination by Central Research Board

The work of the station as a whole should be coordinated by a central board, in connection with which there should be a research committee composed of the directors of the several stations *plus* other eminent coal chemists and fuel technologists. Such an organization should also be charged with the duty of making general investigations upon the carbonization and gasification of coal (including the recovery of byproducts therefrom), and all other technical matters relating to the handling, distribution, and utilization of coal should be referred to it with a view to insuring that the nation's coal shall be used to the best and fullest advantage by every class of consumer. For, as I have pointed out in a previous article, true economy in coal lies not so much in using it sparingly as in using it well.

Important as it undoubtedly is to set up some such national coal-research organization as a necessary part of the internal economy of every industrial state, the utmost benefit will not be realized unless a "coal conscience" is created among the people as a whole by means of a well-directed educational movement. Coal is a gift of Nature which, regardless of the well-being of the present and of the interest of future generations, we squander for the most part in all sorts of foul and wasteful ways, polluting the air of heaven with the smoke and stink of it, thereby depriving the dwellers in our great manufacturing centers of that fulness of sunshine which is so essential to public health. Thus the "smoke nuisance" which, as an ever-present but curable evil, deprives our city population of much beauty of form, color and light that they might enjoy, and spells disease and stunted development to countless thousands of them, is a constant reminder that the health, as well as the wealth, of the community will be conserved and extended by the better use of coal.

Hence it is of the greatest importance that the people as a whole should be educated up to a proper recognition of their duty in the matter. The beneficial results attainable by the general application of scientific principles in handling and using coal should constantly be kept in the public mind by educational propaganda among all sections of the community. The fuel technologists should be men not only of wide knowledge and sound judgment in their special line but also of commanding personality and apostolic zeal, so that they may the more effectually convert the heathen around them to the acceptance and practice of the gospel of coal economy.

In short, the "coal research stations" should be centers (a) for extending our knowledge of the nature and constitution of coal, and for constantly improving the means of utilizing it; (b) for the training of fuel technologists, and (c) for the education of public opinion so as to obtain its effective co-operation in "fuel economy" as a fundamental condition of national health and prosperity. The whole question is recommended to the coal trade as being well worth discussion and action.

## Use of Coal-Cutting Machinery Spread in Great Britain in 1919

STATISTICS with reference to the use of coal-cutting machines in the United Kingdom as given in Part II of Mine and Quarries General Report with Statistics issued for 1919, according to *The Iron and Coal Trades Review*, show that in that year there were 729 collieries where coal-cutting machines were at work as against 695 in the preceding year. The total number of machines employed was 4,482 (as against 4,041 in 1918), of which 1,950 were worked by electricity and 2,532 by compressed air. The total quantity of mineral obtained in 1919 by the aid of these machines was 28,081,017 tons, which is an increase of 207,371 tons, compared with 1918.

The Scotland Division (No. 1) and the Northern Division (No. 2) take the lead as regards the number of machines employed, more than 49 per cent of the total number of machines in use being employed in these two divisions. The following table shows the number of machines and of collieries where used, motive power employed, and quantity of mineral obtained by their use in the various inspection divisions during the year 1919, also the number of conveyors in use at the coal face:

| | No of collieries where machines are at work | No. of machines | Worked by Electricity | Worked by Compressed Air | Mineral obtained, tons | No. of conveyors at coal face |
|---|---|---|---|---|---|---|
| Scotland | 247 | 1,189 | 1,053 | 136 | 10 379,495 | 105 |
| Northern | 108 | 1,025 | 171 | 854 | 4,383,475 | 87 |
| York and North Midland | 134 | 880 | 443 | 437 | 6,995,244 | 162 |
| Lancashire, North Wales and Ireland | 106 | 795 | 58 | 737 | 2,780,092 | 45 |
| South Wales | 56 | 182 | 61 | 121 | 897,047 | 285 |
| Midland and Southern | 78 | 411 | 164 | 247 | 2,645,664 | 28 |
| Total in 1919 | 729 | 4,482 | 1,950 | 2,532 | 28,081,017 | 712 |
| Total in 1918 | 695 | 4,041 | 1,797 | 2,244 | 27,873,646 | 613 |

Of the various types of coal cutters in use at the different inspection districts 1,950 were driven by electricity, divided as follows: Disk, 876; bar, 489; chain, 573; percussive, 7; rotary heading, 5. Compressed-air driven machines totaled 2,582, distributed as follows: Disk, 388; bar, 128; chain, 400; percussive, 1,598; rotary heading, 18.

The quantity of coal in gross tons cut by machinery in the various divisions was as follows:

| Division | Electricity | Compressed Air |
|---|---|---|
| Scotland | 9,394,739 | 852,328 |
| Northern | 1,246,560 | 3,134,033 |
| York and North Midland | 3,779,798 | 3,199,656 |
| Lancashire, North Wales and Ireland | 323,298 | 2,456,794 |
| South Wales | 315,620 | 581,427 |
| Midland and Southern | 1,257,439 | 985,950 |
| Total in 1919 | 16,317,454 | 11,210,188 |
| Total in 1918 | 16,204,653 | 11,118,327 |

# Problems of Operating Men

Edited by James T. Beard

## Breathing of Sealed Areas in Mines

**Several Letters Emphasize the Effect That Any Change in Barometric Pressure Will Effect a Corresponding Change in the Breathing of a Sealed Section in a Mine**

HAVING noted carefully the description given by a fireboss, regarding the changes observed in the breathing of a sealed section of a mine, *Coal Age*, Jan. 27, p. 186, I would like to venture a suggestion as to their probable cause.

In the beginning, let me say that I am familiar with the particular section of the mine at Bruceville, in this state, to which reference is made. It was also my privilege to observe the so-called "breathing" of this and other sections in that mine. These observations led me to study the matter closely and reach some conclusions.

In order to understand the situation clearly, we must not overlook the influence of barometric pressure on a sealed area. One who has observed the barometer, from day to day, knows that the pressure exerted by the atmosphere is exceedingly unstable. Reference to any barometric chart, such as illustrated in the accompanying figure, will show the truth of this statement.

### Influence of Barometric Changes

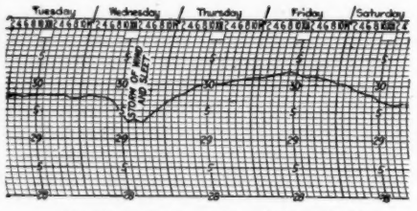
Were we to assume that this section was closed by a perfect seal, we might rightly conclude that the pressure behind the seal would be the barometric pressure at the time the place was closed, plus the accumulated gas pressure; while the pressure in the entry outside would be the variable atmospheric pressure, plus or minus the ventilating pressure, according as the mine is ventilated on the blowing or the exhaust system.

In this connection we must admit, however, that a perfect seal is a practical impossibility, and the pressure within the seal is more or less affected by the changing pressure without.

To more fully appreciate the powerful influence of a barometric change, let us remember that it is nothing uncommon for the barometer to rise or fall an inch in twenty-four hours. The corresponding variation in pressure is equivalent to 13.6 in. of water gage, or 70.7 lb. per sq.ft. of atmospheric pressure. Now, if a seal measuring 6 x 12 ft. was perfectly tight such a change in barometric pressure would mean a change, in the total pressure exerted on the seal, of $70.7 \times 6 \times 12 = 5{,}090.4$ lb., say 2½ tons.

It is true that a rise or fall of one inch in barometric pressure, in twenty-four hours, is extreme. However, a change of only 0.0735 in. in the barometer, or the equivalent of one inch of water gage would produce a change in the total pressure on the seal of $5.2 \times 6 \times 12 = 374.4$ lb., which is sufficient to cause a very appreciable breathing when the valve in the seal is opened.

At other times, when the top of a mine shaft has been sealed, I have observed the same action, and studied the effect of changes in barometric pressure. Indeed, it was nothing unusual to observe a complete reversal of the breathing of the mine, within a few hours. The chart here given shows a fall of one-half inch in ten hours, followed by a rise of seven-tenths inch in fifteen hours.




BAROMETRIC CHART DURING A STORM

It must be remembered that, in the case of a sealed area, that portion of the mine outside of the seal and open to the atmosphere is instantly responsive to any change in atmospheric pressure. The air or gas within the seal is also like affected, but slowly, by leakage through the seal, which tends to establish an equilibrium of pressure. If the valve is opened, the breathing will be in or out through the seal, according as the barometer has arisen or fallen, until perfect equilibrium has been established.

It is possible, too, as suggested by the editor, that an increased outflow of gas released by a roof fall in the section may complicate the effect due to a barometric change. But I am of the opinion that these are exceptional cases.

Vincennes, Ind. W. E. Buss.

### ABSTRACTS FROM OTHER LETTERS

I TOO have been reading with interest the discussion regarding the flow of gas out or in through the valve in a sealed off portion of the Bruceville mine. It does not seem to me that the change from the drawing in to the blowing out of the air observed by this fireboss was due to a fall of roof releasing more gas within the seal.

For five years, I was employed in the American No.-1 mine, which was about seven miles from the Bruceville mine. I believe the conditions in that mine were the same as those at Bruceville, as both of the mines were working the same coal, No.-5 seam. The No.-1 mine generated much gas, which made it necessary to seal off the old workings, from time to time.

### Seven Sealed Sections in Our Mine

When I left the American mine there were no less than seven sealed sections of old workings. It was noticeable that when one of these sections was blowing out, all of them were doing the same. Again, when one was drawing in, they were all drawing in, alike. I often noticed that these sealed sections would blow out into the mine at a time when the barometer was low, and would change and draw air in when the barometer was high.

At the American mine, we even measured the pressure of the air and gas behind the seal by means of a water gage. The greatest pressure observed when the air was blowing out through the valve was a 3½-in. gage; but it was generally much less, depending on how low the barometer fell. We also took samples of the air and gas that escaped when the sections were blowing out, and these were analyzed, showing the mixture contained marsh gas ($CH_4$), carbon dioxide ($CO_2$) and a very little common monoxide (CO).

Before closing, let me say that I believe the only safe way to deal with old workings, in mines generating gas like the one at Bruceville and other mines in that locality, is to seal them off and watch carefully to observe the conditions existing behind the seals.

Wheatland, Ind. Alban Ricketts.

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MY ATTENTION has been called to a letter that appeared in *Coal Age*, Jan. 27, p. 186, describing an observed change in the breathing of an abandoned section of a mine that had been sealed off from the live workings for a long period. I notice the editorial comment suggests, as the most plausible reason for the observed change of breathing, a possible fall of roof within the sealed area releasing fresh volumes of gas.

The editor evidently bases this suggestion on the fact stated by the fire-

boss that this coal is overlaid with five feet of black slate and that when the roof breaks up to the "steel band" above the slate much gas is generated. While it is possible that a fall of roof, under these conditions, may open a strong gas feeder, there appears to be a more satisfactory explanation of the observed change in the breathing of this sealed section.

Let me say that, unless a sealed area contains very strong feeders of gas, it will breathe in and out with each corresponding change of barometer. In fact, such a sealed section is itself a huge barometer, giving its indications by the observed movement of the air and gas, in and out, through the pipe in the seal when the valve is opened.

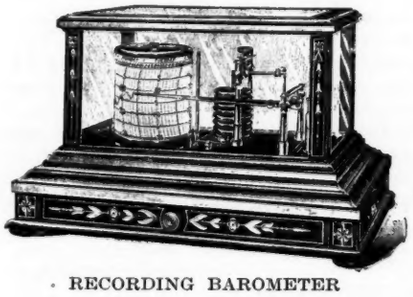
### Effect of Quarter-Inch Change

An atmospheric change of ¼ in. of barometer, above or below an average line is not at all unusual. Such a change is equivalent to $13.6 \times \frac{1}{4} = 3.4$ in. of water gage. This change of pressure is felt uniformly throughout the mine, except in the sealed areas, which are like stoppered bottles, if the seals are well made.

That being true, when the atmospheric pressure drops below the average line the pressure within the sealed area will be that much greater than the pressure in the adjacent airway. This excess of pressure will cause an outflow of air and gas into the mine when the valve is opened in the pipe in the seal.

On the other hand, if the atmospheric pressure should rise above the average line, the pressure within the seal will then be less than that in the airway without; and, as a result, if the valve is now opened fresh air will rush into the sealed section. In other words, the breathing of the section will be inward, instead of outward as before.

If this correspondent will make a habit of observing the mercurial barom-



RECORDING BAROMETER

eter, whch should be at or near the mine entrance on the surface; or, better still, if he will study the barometric chart of a recording barometer or barograph, such as shown in the accompanying figure, he will generally find that the breathing in or out of a sealed section, in the mine, corresponds to the rising or falling of the barometric pressure.

Assuming, on the basis suggested by the editor, that a large outflow of gas has taken place within the sealed area, under a pressure above that of the atmosphere, the average pressure line determining the flow through the seal would be raised thereby. This condition would extend the period of outward breathing. In other words, the duration of the outward breathing might then be continued and, perhaps, overlap an observed fall of barometric pressure; or may even anticipate a rise in barometer, as storm centers approach and recede in passing over the country from West to East. The movement of these storm centers is shown by the daily chart of the Weather Bureau.

George S. Rice,
Chief Mining Engineer,
U. S. Bureau of Mines.
Washington, D. C.

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PICKING up the issue of *Coal Age* for Jan. 27, the other day, my attention was drawn to the discussion on page 186, regarding the "breathing" of an abandoned section that had been sealed off from the rest of the mine.

Judging from the wording of the fireboss' letter, the valves in the pipes through the seals are kept closed, except when an examination is to be made of the atmosphere within the area. If this is true the change that he observed in the reversing of the breathing, on certain days, is not at all surprising to my way of thinking.

### Conditions When Section Was Sealed

Let us assume that, at the time the abandoned workings were sealed, there existed a certain atmospheric pressure, as indicated by the height of the barometer. The valves were then closed and we will assume, as the fireboss states, that there are no breaks extending to the surface, nor other openings by which the pressure of the air in the enclosed space could change, except very slowly as a result of a possible subsidence of the overlying strata.

Under these conditions, I would say that, during periods of low barometer, the pressure in the sealed off portion will be greater than the mine pressure; and the result will be that the air will flow out if the valve in the seal is opened at such times. On the other hand, should there be a rising barometer at the time when the valve is opened, I would expect air to flow from the mine into the inclosed space behind the seal, because of the high barometer.

As has already been suggested, the system of ventilation employed in the mine will make the mine pressure greater than that of the atmosphere when a pressure fan is in use, or less than the atmospheric pressure if an exhaust fan is in operation. But, the same would be true when the place was sealed off and the fact would not alter the reasoning in respect to the breathing in or out of the sealed portion of the mine.

However, it might prove that a reversal of the fan, from blowing to exhausting, or *vice versa*, would materially alter the mine pressure with respect to that behind the seal. For example, when exhausting, the reduction of pressure due to the action of the fan, may be so great that the pressure behind the seal will cause the air to flow out through the valve at a time when the barometer has risen.

Sheldon Smillie,
Pittsburgh, Pa. Mining Engineer.

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## "Equally Competent" Mine Foreman and the Bituminous Mine Law

*The discouraging effect of the "equally competent" clause, in the Bituminous Mine Law of Pennsylvania, on many mine foremen, is plainly seen by the attitude they assume toward taking the examination for that position.*

WITH much interest I read the letter of the correspondent who signs himself "In the dark," which appeared in *Coal Age*, Feb. 3, p. 234. I often wonder why many operators will employ an uncertified man who holds no legal certificate of qualification, and place him in charge of his mine as foreman.

The term "equally competent" that was introduced into the Pennsylvania bituminous law, at the time when the Workmen's Compensation Law was passed in that state, makes the holder of a certificate no better in the eyes of the law than the person who has none, provided the employer of the latter thinks he is equally competent with the man who has passed an examination and gotten his certificate.

Judged by the law, both of these men are supposed to have the same familiarity with mining conditions and general work underground, and both are considered as being equally capable in respect to the safety of employees and the preservation of property; and it would seem further that both the certified and the uncertified man would be expected to comply with the several provisions of the mining law. But it often happens that the man without the certificate is a mere "straw boss."

### Could Not Pass Examination Required by a Board

Let me ask this "straw boss," if he *is* equally competent with the other fellow, why it is he has never taken the examination and gotten his papers. The only reason he can give, in answer to my question, is that he never cared to go before the examining board or ask for his papers. The fact is he is simply a common miner and has not the knowledge to pass the examination.

In one instance, I remember, a miner was asked to act as assistant foreman, temporarily, to fill a vacancy in that position. He stated frankly that he did not care for such a job. One reason he gave was that he had no papers and did not believe in taking the examination to get them. He said, in England, it was very different and the position was worth while.

Though I let the speaker proceed and made no attempt to alter his opinion, in my own mind I blamed his attitude toward taking the examination wholly to this wording of the mine law. It has

lowered the position, in his eyes, and the same is true of many others who have no desire to try for their papers or to assume a position where incompetent men are their equal in the eyes of the law.

It goes without saying that a superintendent can appoint a relative, a friend, or a pal in one of his clubs. For myself, I would feel cheap to take charge of a mine as foreman, without having my papers. I would fear the men would make fun of me, instead of giving me their respect and obedience.

To my mind, a man's papers show whether or not he is competent. They are evidence of his ability and apparent to all with whom he comes in contact. Any uncertified man should, like the person I have mentioned, refuse to take the position as foreman or assistant foreman if one is offered to him.

Avella, Pa. P. MOLANI.

### ANOTHER LETTER

READING the letter that appeared in *Coal Age*, Feb. 3, p. 234, by one who signs himself "In the dark," leads me to ask: Does he believe that the man without papers, who has failed in his duty in the mine, should not be punished the same as if he had had his papers?

We all know that our 1911 mine law (bituminous) is doubtful, to say the least, regarding the penalty that it imposes on an uncertified man who fails in his duty in the mine. Regarding mine foremen and assistant foremen, the law first states that they must hold certificates, but then adds, or be equally competent, in the judgment of their employers, with certified men.

#### ANY MAN CAN RUN A MINE IF EMPLOYER THINKS SO

According to this later ruling any man can run a mine if the superintendent thinks he is fit for the job. To my mind, there is only one conclusion possible and that is: A court must be governed by the reading of the law. In that case, it seems to me that no court will be able to pass judgment on a man that is not certified under the law.

There is nothing that would cause a person to be "in the dark" on this matter. My opinion is that the law does not reach the uncertified man, although it permits his employment on the strength of the superintendent regarding him as equally competent with a certified man.

Much as the Compensation Law has benefitted the mining industry in this and other states, in Pennsylvania it has unfortunately been responsible for striking out the most important provision of the old law, in respect to the safety of men employed underground and the security of the mine.

It is foolish for men to think that a man who cannot take his examination and get his papers is competent to act as a foreman or assistant foreman. A man that can neither read nor write, or one who has not the education that would enable him to go before an examining board, cannot be fit to run a mine.

If this letter is read by a mine foreman or assistant foreman who has charge of a mine but has been granted no papers, I would say to such a one: This letter applies to *you*. That does not mean, however, that the man should be discouraged, for opportunities are open to every one to get the necessary education if he will.

In closing, let me say that the Scranton Correspondence Schools, mine inspectors and many of our large coal companies are doing everything possible to place this education within the reach of their men. It is only through these means that we can hope to reduce the accident list in mining. The better class of mine officials, without exception, are averse to employing uncertified men as foremen or assistant foremen.

JOHN H. WILEY.

Oliphant Furnace, Pa.

# Inquiries Of General Interest

## Engine-Plane-Haulage Proposition

**An Electric Hoist, Now Hauling Three-Car Trips Up an Engine-Plane Having an Average Grade of 17 per Cent, Is Claimed To Be Capable of Developing 250 Horsepower — It Is Desired To Know If the Size of Trips Can Be Increased to Four or Five Cars with Safety, Using 1⅛-In. Wire Rope and ⅞-In. Car-Couplings, the Length of the Plane Being 2,200 Feet**

FOR a while back, we have been having considerable argument as to whether or not it is possible to increase the size of trips now being hauled up an engine-plane, at one of our mines. I have made some calculations, which seem to show that the strength of part of the equipment is not equal to the test, and we have decided to submit the question for the consideration of *Coal Age* and its readers.

The plane is 2,200 ft. long and has an average grade of 17 per cent; except near the head of the plane where the grade increases to 36 per cent (21 deg.). An electric hoist of 250 hp. is located at the head of this plane and, at present, hauls three-car trips up the incline, at a speed of 700 ft. per min. with ease. A 1⅛-in., 6-strand, 7-wire, haulage rope is used and the size of the car couplings is ⅞ in. The weight of a single loaded car will average 5 short tons (10,000 lb.), which makes the weight of a three-car trip 30,000 lb.; a four-car trip, 40,000 lb.; and a five-car trip, 50,000 lb.

The question I want to ask is, first: Is this engine big enough to hoist five-car trips up this plane, at the same speed? Also, are the rope and car couplings strong enough to stand the test? Second, if it is not possible to hoist a trip of five cars safely, will it be possible to hoist four cars at a time, at the same speed?

My estimate runs about as follows: Weight of a five-car trip, $5 \times 5 \times 2{,}000 = 50{,}000$ lb. Weight of 1⅛-in. rope, weighing 2 lb. per ft. and 2,200 ft. long, $2 \times 2{,}200 = 4{,}400$ lb. The total weight to be hoisted when the trip is at the foot of the plane is, therefore, 54,400 lb., or 27.2 tons.

Taking the track resistance as $\frac{1}{40}$ of the moving load, it is $54{,}400 \div 40 = 1{,}360$ lb. The gravity pull due to a 17 per cent grade is $0.17 \times 54{,}400 = 9{,}248$ lb. This makes the total resistance or load on the rope, say 10,600 lb., or 5.2 tons.

Then, assuming the efficiency of the engine is 80 per cent, the required horsepower will be

$$H = \frac{10{,}600 \times 700}{0.80 \times 33{,}000} = 281 \text{ hp.}$$

If this is correct it shows that our engine is too small to hoist a five-car trip. Again, estimating the strength of the couplings, for the 36 per cent grade at the head of the plane, the load on the first coupling, supporting four cars weighing 40,000 lb., is $0.36 \times 40{,}000 = 14{,}400$ lb. or 7.2 tons. But, according to tables given by manufacturers of chains, a wrought-iron, ⅞-in. chain has a working stress of only 4.4 tons, which shows that the couplings would not hold.

Please say if my calculations are practically correct. Also, show what horsepower of engine will be required, and the size of couplings necessary to hoist four-car trips on this plane, at a speed of 700 ft. per min.

HOISTING ENGINEER.

Wilkes-Barre, Pa.

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For all practical purposes the calculations made by this correspondent are correct. They show that neither the engine nor the car couplings have sufficient strength to hoist five-car trips on this plane. Taking the frictional resistance as $\frac{1}{40}$ of the moving load, as he has assumed, however, is equivalent to a track resistance of $2{,}000 \div 40 = 50$ lb. per ton, which though high does not materially affect the result.

It may also be remarked here that the allowable working stress of a 1⅛-in., 6 strand, 7-wire, cast-steel haulage

rope is given in standard rope tables as 8 tons, which shows that the rope also would not be safe when the trip reached the steep grade at the head of the plane where the load on the rope is 50,000 × 0.36 = 18,000 lb., or 9 tons.

Estimating on a four-car trip, weighing 4 × 5 × 2,000 = 40,000 lb., plus the weight of a 1⅛-in. rope, 2,200 ft. long, makes the total load to be hoisted when the trip is at the foot of the plane 44,400 lb., or 22.2 tons.

Not knowing the style of car equipment, we will assume a track resistance of, say 30 lb. per ton. The grade resistance is, practically, 20 lb. per ton, for each per cent of grade, which gives 17 × 20 = 340 lb. per ton. This makes the total resistance 340 + 30 = 370 lb., per ton of moving load.

Finally, for a grade of 17 per cent, the load on the rope when hoisting a four-car trip at the foot of the plane is 22.2 × 370 = 8,214 lb., or 4.1 tons. Hoisting at a speed of 700 ft. per min. and assuming an efficiency of 80 per cent, the required horsepower of the engine, in this case, is

$$H = \frac{8{,}214 \times 700}{0.80 \times 33{,}000} = 217 \text{ hp.}$$

The strength of the rope and car couplings, however, must be estimated for the steep grade at the head of the plane; although this is not necessary in estimating the required power of the engine, because the speed of hoisting will naturally be reduced on this short steep grade; and the engine will be able to land the trip at the head of the plane.

When the trip has reached the steep grade the load on the rope is that due to the four cars only, weighing 40,000 lb. or 20 tons, which gives 20 × 370 = 7,400 lb., or 3.7 tons. This is well within the strength of both the rope and the couplings. Safety requires, however, that the wear and tear of both rope and couplings be carefully watched, in order to avoid accidents.

# Examination Questions Answered

## Examination for Mine Foremen, Eighteenth Anthracite District

*(Selected Questions)*

QUESTION—*When a fan is exhausting the air from a mine how does it produce ventilation? State, also, how a force fan produces ventilation.*

ANSWER—The action of a centrifugal fan always causes a depression at its center and a compression at its circumference. When exhausting, therefore, the central openings of the fan must be connected with the fan drift and the spiral space within the casing and surrounding the fan open to the atmosphere. In that arrangement, the fan acts to cause a depression in the fan drift. A current is created in the airways of the mine by reason of the atmospheric pressure acting on the downcast shaft or intake opening and forcing the air into the mine. In this case, the mine is ventilated under a pressure below that of the atmosphere. The depression in the fan drift exerted on the entire sectional area of the drift is the total pressure producing ventilation.

On the other hand, a force fan is so arranged that its spiral casing is in direct connection with the fan drift, while the central openings are exposed to the atmosphere. In this case, the action of the fan produces a pressure in the fan drift above that of the atmosphere. This excess of pressure creates a circulation of air in the mine, the current now passing from the fan drift into the mine from which it is discharged through the upcast shaft.

QUESTION — *Doubling the velocity of air in roadways without altering their dimensions, in what proportion does the pressure and power increase? Work out fully.*

ANSWER—For the same dimensions of the airway, the pressure producing the circulation varies as the square of the velocity of the air current. Thus, increasing the velocity two times, increases the pressure as $2^2 = 4$ times the original pressure.

Again, for the same airway or mine, the power on the air varies as the cube of the velocity of the current. Thus, to double the velocity requires that the power be increased $2^3 = 8$ times the original power.

QUESTION — *If the barometer stands at 29.4 in., find the pressure on a square inch.*

ANSWER—Since a cubic inch of mercury (standard, 32 deg. F.) weighs 0.491 lb., the pressure corresponding to a mercury column of 29.4 in. is 29.4 × 0.491 = 14.435 lb. per sq.in.

QUESTION—*A pump at the bottom of a slope 560 ft. long, pitching 47 deg. is discharging water to the surface through a 10-in. column pipe. What is the pressure per square inch at the pump? What is the total weight of water in the column pipe?*

ANSWER — The vertical head under which the pump is discharging, in this case, is 560 × sin 47 deg. = 560 × 0.73135 = 409.55 ft. The static head on the pump is, therefore, 409.55 × 0.434 = 177.74 lb. per sq.in. But when the pump is in operation there must be added to the static head an amount equal to the sum of the friction and velocity heads.

Assuming a discharge velocity in the column pipe of, say 400 ft. per min., the quantity of water discharged through a 10-in. pipe is 400 × 12(0.7854 × $10^2$) ÷ 231 = say 1,600 gal. per min. The sum of the friction and velocity heads is then calculated by the formula:

$$h_1 = \frac{G^2}{800\,d^4}\left(\frac{h}{d} + 2\right)$$

$$= \frac{1{,}600^2}{800 \times 10^4}\left(\frac{560}{10} + 2\right) = 18.56 \text{ ft.}$$

Adding this result to the static head gives for the effective head against which the pump must operate, 409.55 + 18.56 = 428.11 ft. The pressure due to this total head is 428.11 × 0.434 = 185.8 lb. per sq.in.

The total weight of water in a 10-in. pipe 560 ft. in length is 560(0.7854 × $10^2$)0.434 = 19,088 lb., say 9½ tons.

QUESTION—*If, with a pressure representing one inch of water gage, 30,000 cu.ft. of air passes, what height will the water gage be when the quantity passing is 50,000 cu.ft.?*

ANSWER—For the same mine or airway, the unit pressure or water gage varies as the square of the quantity of air in circulation. In other words, the water gage ratio is equal to the square of the quantity ratio. Then, calling the required water gage $x$, we have:

$$\frac{x}{1} = \left(\frac{50{,}000}{30{,}000}\right)^2 = \left(\frac{5}{3}\right)^2 = \frac{25}{9} = 2\text{-}7/9 \text{ in.}$$

QUESTION—*What mode of ventilation reduces the dangers of an explosion and reduces the friction? State the reason it is so.*

ANSWER — By splitting the air current, the danger of an explosion is minimized and the frictional resistance to the passage of the air is reduced. There is less danger of an explosion taking place when the mine is ventilated by separate splits of air, because the velocity of the current is reduced in each section of the workings; less dust is carried in the air current and there is less opportunity for gas to accumulate at the working face. The ventilation of each district is also under better control, the quantity of air in each split being proportioned to the need.

Where the air is divided and made to travel with a less velocity, the friction is reduced, because the friction varies as the square of the velocity of the current. Thus, dividing the air into two splits reduces the velocity one-half and the friction is then one-fourth of what it was previously.

QUESTION—*At a certain colliery, the shaft is 6 ft. in diameter and the quantity of air passing is 17,600 cu.ft. per min. What is the velocity of the air in feet per sceond?*

ANSWER — The sectional area of a circular shaft 6 ft. in diameter is 0.7854 × $6^2$ = 28.27 sq.ft. and the average velocity of the given volume of air is, therefore, 17,600 ÷ 28.27 = 622.5 ft. per min., or 10.37 ft. per sec.

# Foreign Markets and Export News

## Exports of Coal and Coke From the United States

BY CUSTOMS DISTRICTS, JANUARY, 1921*

| Customs Districts | Coal: Anthracite, gross tons | Coal: Bituminous, gross tons | Coke, gross tons |
|---|---|---|---|
| Maine and N. H. | 170 | 1 | ..... |
| Vermont | 1,366 | 18,320 | 27 |
| Massachusetts | 204 | 4 | ..... |
| St. Lawrence | 86,587 | 402,196 | 782 |
| Rochester | 4,855 | 44,910 | 220 |
| Buffalo | 174,718 | 502,577 | 15,786 |
| New York | 4,988 | 19,483 | 876 |
| Philadelphia | 5,853 | 80,267 | 1,257 |
| Maryland | ..... | 157,847 | 3,325 |
| Virginia | ..... | 736,448 | 1,450 |
| South Carolina | ..... | 24,271 | ..... |
| Georgia | ..... | 6,706 | ..... |
| Florida | ..... | 8,010 | 1,778 |
| Mobile | ..... | 5,049 | ..... |
| New Orleans | ..... | 1,026 | 28 |
| San Antonio | 7,939 | 4,935 | 1,387 |
| El Paso | 32 | 21,451 | 3,305 |
| San Diego | ..... | 19 | ..... |
| Arizona | ..... | 4,872 | 29 |
| San Francisco | 5 | ..... | ..... |
| Washington | 125 | 1,897 | 23 |
| Dakota | 2,189 | 3,151 | 90 |
| Duluth and Superior | 6 | 29,314 | 118 |
| Michigan | 303 | 117,286 | 7,087 |
| Ohio | ..... | 58,222 | 175 |
| Porto Rico | ..... | 186 | 2 |
| Total | 289,340 | 2,248,448 | 37,745 |

BUNKER COAL SUPPLIED TO STEAMERS IN FOREIGN TRADE

| Customs Districts | Tons |
|---|---|
| New York | 291,333 |
| Philadelphia | 28,664 |
| Maryland | 46,545 |
| Virginia | 238,113 |

*Data compiled by Bureau of Foreign and Domestic Commerce.

INDIA'S COAL EXPORTS have been prohibited, with the exception of a limited amount to Colombo, Ceylon. Restrictions have also been placed on bunker coal for steamers. The necessity for the limitation is considered particularly unfortunate at this time, in view of India's unfavorable trade balance. In the six months, April to September, 1920, India exported 739,000 tons of coal, or more than three times as much as in all of 1919.

## Stocks of Coal in France Trebled in Year

The following figures of France's production of coal in 1919 and 1920 are furnished by the French Minister of Industry: (All figures are in metric tons).

| | 1919 | 1920 |
|---|---|---|
| French production | 17,945,821 | 20,348,020 |
| Sarre production | 2,503,354 | 4,478,703 |
| Imported from Germany | 1,030,500 | 6,959,656 |
| Imported from other countries | 17,801,377 | 17,122,831 |
| Totals | 39,281,052 | 48,909,210 |

On Jan. 1, 1920, there were stocks on hand of 1,500,000 tons. On Jan. 1, 1921, stocks on hand totaled 4,500,000 tons.

The price of coal in France has varied as follows:

| January, 1920 | Frs. per Ton | January, 1921 | Frs. per Ton |
|---|---|---|---|
| French coal | 122 | French coal | 124 |
| Sarre coal | 125 | Sarre Coal | 110 |
| German coal | 125 | German coal | 125 |
| Belgian coal | 78 | Belgian coal | 134 |
| English coal | 304 | English coal | 196 |
| American coal | 313 | American coal | 195 |

A NUMBER OF APPLICATIONS for loans to assist the exportation of coal to Europe have been received by the War Finance Corporation. It is said the principal exports are for Italy, of from 10,000 to 15,000 tons. It is expected that authorizations for the loans will be made soon. Details as to companies are withheld pending action on the applications.

## French Coal Production

French production of coal, including lignite in 1920, amounted to 25,276,304 tons, or 2,000,000 tons in excess of 1919. The December output was 2,444,221 tons which led the monthly production for the year.

The Douai district produced the greatest amount of coal in December. Returns are as follows:

| District | Tons | District | Tons |
|---|---|---|---|
| Arras | 705,709 | Toulouse | 164,554 |
| Douai | 323,599 | Marseille | 72,670 |
| St. Etienne | 323,097 | Nantes | 7,754 |
| Lyon | 210,947 | Bordeaux | 10,731 |
| Clermong-Ferrand | 119,726 | Nancy | 8,870 |
| Alais | 179,444 | Strasbourg | 317,120 |

The December total for the mines of the North and the Pas-de Calais was 1,029,308 tons and for the Sarre basin, 873,224 tons. In 1913, France's coal and lignite production amounted to 40,844,218 tons.

## January Port of New York Exports Gain

Export of anthracite and bituminous coal and coke through the Port of New York during January, 1921, amounted to 25,347 tons as against 13,126 tons in January of last year. Of this tonnage the anthracite shipments amounted to 4,988 tons; bituminous, 19,483 tons and coke 876 tons as compared with 10,515 tons; 95 tons and 2,516 tons respectively.

Of the anthracite shipped, Canada is credited with receiving 2,552 tons and Netherlands 1,140 tons. France received 9,050 tons of bituminous; Portugal 1,580 tons; Turkey 4,500 tons; Trinidad 1,358 tons and Egypt, 1,000 tons. Of the coke shipped, Norway received 205 tons and the Argentine 424 tons.

## Better Production of Coal by Devastated Mines in Northern France

December, 1920, coal production of the mines devastated in northern France during the war totaled 323,599 tons, distributed as follows:

| | |
|---|---|
| Aniche | 71,174 tons |
| Anzin | 117,251 tons |
| Azincourt | 1,877 tons |
| Crespin | 4,084 tons |
| Douchy | 9,138 tons |
| Escarpelle | 11,484 tons |
| Thivencelles | 5,680 tons |
| Vicoigne | 4,250 tons |
| Courrières | 9,040 tons |
| Dourges | 11,911 tons |
| Lens | 1,210 tons |
| Ostricourt | 76,500 tons |

The production of the above mines in November totaled 314,830 tons.

The total production of these mines in December, 1919, was a little over 35,000 tons. At present the mines employ 23,896 miners underground and 29,954 aboveground. Up to the present time, the number of workers employed above ground has been greater than those employed underground.

Production in the devastated collieries reached 8,449,665 tons in 1920, an increase of 1,381,939 tons, or 19 per cent, over the production of 1919.

## Swiss Coal Imports in January, 1921

According to the return of the Swiss Co-operative Society for Coal Supply, the following imports of coal were made in January, 1921:

| | Tons |
|---|---|
| America | 120,630 |
| Sarre districts | 5,679 |
| Ruhr districts | 7,751 |
| Rhenish brown coal | 15,004 |
| Belgium | 1,055 |
| France | 5,636 |
| England | 58,262 |
| Total | 214,017 |

# High Costs Justify Price of Vancouver Island Coal

## Output of Vancouver Declines—Field Is Strictly Limited—Likely to Have Coal Shortage When Imported Fuel Fails —Flotation Being Tried by Canadian Collieries, Ltd.

BY OUR VANCOUVER CORRESPONDENT

OWING to the continued protest of the Canadian Pacific coast to the price of domestic coal the Canadian Institute of Mining and Metallurgy at its meeting of Feb. 9 to 12 spent much of its time discussing the causes for the high cost of coal, addresses being delivered by Thomas Graham, general superintendent of the Canadian Collieries, Ltd., and George Wilkinson, general manager, Pacific Coast Mines, Ltd.

Mr. Graham said that the coal production of the province in 1920 was 500,000 tons less than in 1910. This decline arises from the competition of fuel oil, which has displaced approximately 600,000 tons of Vancouver Island coal per annum. This means that at present prices $6,000,000 is being spent in the United States which would otherwise be expended in the support of Canadian industries, in meeting the balance of trade and correcting the depreciation of the Canadian dollar.

Mr. Graham then exploded some of the fallacious beliefs regarding the coal fields of the island. There was no truth, he said, in the commonly accepted theory that a barge could back up against any portion of the east coast of the island and be loaded with coal that could be obtained by the simple expedient of shoveling. Mr. Graham said:

### DOWNTHROW AND GLACIAL ACTION SPOIL FIELD

"In the West we find coal in rocks belonging to the Cretaceous period and lying upon trap or igneous rocks. It is to the Cretaceous period that the Vancouver Island coals belong. The seams are interlarded with many intrusions of shale, some of these bands varying from inches to as much as four to six feet in thickness. The area of the deposit undoubtedly was large, but long after the formation of the seams the great uplift, which formed the mountain range now comprising the background of Vancouver Island, and the corresponding drop, which formed the area now known to us as the Gulf of Georgia, destroyed the greater part of the field. Following this came the Glacial period, which completed the work and eroded much that the uplift had spared, until today we find that instead of the greater part of the island being underlaid with coal, there are only a few isolated basins left and these are much faulted and disturbed.

"It is the general belief that the E. & N. land grant on Vancouver Island is all underlaid with three seams of coal. At least one and one-half million acres of the two million acres in this belt cannot possibly contain that mineral, being nude of coal-bearing strata. Of the half million acres remaining which may be coal bearing the greater portion is unproven. We know, however, that there are large areas that do not contain coal in seams sufficiently thick and advantageously placed to have any commercial value.

### NEW AREAS OF GOOD COAL NOT DISCOVERED

"Some good, although small, detached basins of coal on Vancouver Island have been operated, as at Old Wellington, Extension, Nanaimo Harbor, and adjoining Comox Lake, and it is probable that there are more basins of similar character on the island, but they have to be found and proven.

"There are, however, no large areas of unbroken and regular coal measures similar to those of the eastern parts of the continent and the plains and foothills of the Rocky Mountains. Our basins are small, much faulted and contorted and have many barren spots. They contain seams dirty in character, and their operation presents problems to the mining engineer unequalled by those to be encountered in any other mining country in the world.

"The areas being operated at present are in the main those which were opened soon after the discovery of the field. In consequence the mines are now old and cover immense areas. The coal being produced is chiefly that which in the early days of the mine was either lost or left because it was too dirty or too thin to work at a profit."

### EXPLORATION COSTS MORE THAN $100 PER ACRE

During the past two years Mr. Graham said his company had been prospecting a basin that gave promise of producing good coal. Twenty-one miles of road had been built for the transportation of diamond drills and supplies and twenty-five holes had been drilled an aggregate of 15,000 ft. The area under exploration contains not more than from 1,000 to 1,200 acres, yet the work has cost $100,000, and the information obtained to date is not sufficient to fully convince the company that the field has commercial possibilities and would justify the cost of development and the building of ten miles of railroad to connect the field with tidewater. Concluding the speaker said:

"The day is not far distant when the city of Vancouver must return to the use of coal for power and heating purposes. When that day comes the coal industry of the land will be found in no shape to take care of the wants of the city. It has been neglected and starved, and will be unable to respond. The mines will then be called upon to provide a production large enough to sustain the industries which in the last ten years have been built up on the use of imported fuel. The city will then pay for past neglect not only in price but in the curtailed output of its factories."

### CONSUMER LIKES TO BREAK LUMP TO MINE RUN

In his paper Mr. Wilkinson showed that on the Pacific coast the costs of coal mining were higher than in most other fields and the production per man per shift comparatively low. Some surprise was expressed that the consumer insisted on obtaining the finest lump coal, which could be produced for him only at the highest of prices. He did this apparently solely for the purpose of having the pleasure of going into the cellar to break up the lumps. The ultimate result of his exercise was to convert the lump which he had obtained at such an expense into run-of-mine coal that he could have purchased at a much lower price.

Alexander Sharp gave a paper in which he referred to the possibility of increasing the production in the province by the greater use of mine machinery. He stated that there was less of this in use in this province than anywhere else on the continent and that, if the operators kept up to date in this respect, the production per man might be expected to grow.

In reply Charles Graham, of the Canadian Collieries, said that his company had introduced cutting machinery at Comox. They had all of such appliances which they could satisfactorily use. As a matter of fact the seams of the island were not sufficiently even to make such machinery adaptable.

### TRYING FLOTATION IN CANADIAN COLLIERIES

Discussing the possibility of recovering the very fine combustible material at present wasted in washing, Thomas Graham said that the Minerals Separation Co. was already experimenting with methods by which it was hoped to save this class of the product of the Canadian Collieries. The results heretofore had not been altogether satisfactory, but those engaged were confident that they would be able to work out a method for a substantial recovery by this process.

## Canadian Mine Institute Meets at Montreal

By Edward H. Robie
New York City

MEETING at Montreal, far from any of the coal-mining centers, the Canadian Mining Institute had many good metal papers but not much about coal. The chief paper on that subject was read by F. W. Gray, editor of the *Canadian Mining Journal*, who pointed out the problems with which Canada was confronted in endeavoring to supply herself with coal to the exclusion of United States fuels of various kinds.

James McAvoy opened the discussion, showing the evaporative efficiencies of the different kinds of coal found in Canada and pointing out the relative prices that could be paid at the mine mouth for the different varieties. Some coals probably could be shipped further than others, because of their great evaporative efficiency, and for this reason it would not always be advisable to obtain coal from the nearest field. Mr. McAvoy discussed the advantages of a reduction in transportation and marketing cost.

The only other references to coal were contained in the opening address of O. E. S. Whiteside, the retiring president, and in the report of John McLeish, the chief of the Division of Mineral Resources and Statistics. The former dwelt on the disadvantage of having the Montreal headquarters so far from the mining districts of Nova Scotia and the West and emphasized the importance, therefore, of expanding branch organizations. These should establish friendly relations with the various provincial governments, but should be careful to act as counselor rather than critic.

### Suffers From Unequal Distribution of Coal

Mr. Whiteside said that the coal resources of Canada are greater than those of any other country except the United States, but it is all in the Far East and West, and as a result, central Canada has been importing about twenty million tons annually. The task of molding public opinion on this subject, he said, was worthy of the institute's highest endeavors. The new president, C. V. Corless, in his banquet speech also referred to the coal needs of Canada. He complimented F. W. Gray, editor of the *Canadian Mining Journal*, for his fight for the more active development of the Canadian coal resources.

Mr. McLeish was obliged to express his regrets that he had not been able, as in other years, to make a complete report of the output of Canadian mines during the past year. No reports were available from British Columbia, Nova Scotia or Alberta. The coal production of Alberta in 1920, however, was stated to be about 6,900,000 tons, an increase of almost 50 per cent over that of the previous year. Coal production in Nova Scotia, according to Mr. Gray, amounted to about 5,600,000 tons.

Mr. McLeish's talk was followed by some discussion by Mr. Gray, Dr. Miller, Mr. Denis and others as to the wisdom of the new government regulation that the collection of mineral statistics be henceforth intrusted to the Dominion Statistical Bureau instead of the work being done, as formerly, by the Department of Mines. The general opinion was that the transfer of this work was a mistake, and that it was a case of carrying centralization too far. It was pointed out that statistics are of value only if comparative, and that the continuity of the work was likely to be interrupted by the change.

The Canadian Institute received $31,700 in 1920 and showed a surplus for the year of $4,629, although it was later said that this did not include certain items for depreciation, and that the actual surplus was only $12. Without raising the dues, the institute expects to have a surplus of $2,000 for 1921. The meeting opened on Feb. 2 and adjourned on Feb. 4.

## Magraw President Rocky Mountain Institute

CONVERSION of the fireboss into the real safety boss of the coal mine was the burden of a paper by R. S. Morton at the Rocky Mountain Coal Mining Institute. Mr. Morton questioned whether this official should not be made directly answerable to the state instead of to the mine foreman, for that official in his anxiety to perform his duties as the executive of the operator might be disposed to ignore the findings of the fireboss and take a risk in order to keep the mine in operation.

The question is not a new one. *Coal Age* has deplored the dual responsibility of the mine foreman who was answerable to the state for safety and to his employer for results. He receives his emoluments and advancement from his employer, yet many of his duties are prescribed by the state.

Rocky Mountain operators, especially in Utah, have been disposed to seek to influence legislation in favor of stricter mining laws, which would make all the competitors in the coal business provide conditions making for maximum safety. The suggestion of Mr. Morton consequently did not fall on deaf ears. A committee was appointed to look into the matter and to report at the next meeting.

"Unwatering of the Rouse Mine" was the subject of D. A. Stout of Pueblo, Col., chief engineer of the Colorado Fuel & Iron Co. George A. Brown, of Cumberland, Wyo.; Robert Marshall and Sam Andrew, of Iowa; Robert McAllister, of Trinidad, and Sam Allier and Parley Potter, of Tremont County, also contributed papers of interest.

Robert M. Magraw, of Hiawatha, Utah, succeeds B. J. Matteson as president. F. W. Whiteside, of Denver, chief engineer of the Victor American Fuel Co., succeeds himself as secretary-treasurer. The vice-presidents are George B. Pryde, general superintendent, Union Pacific Coal Co., representing Wyoming; B. W. Snodgrass, of the Victor-American Fuel Co., representing Colorado; Allan French, general superintendent of the Swatiska Coal Co., representing New Mexico; William Littlejohn, general superintendent of the Utah Fuel Co., representing Utah.

In a trip to a mine of John McNeil near Frederick, the fifty visiting coal men had an opportunity to see the Oldroyd mining machine in active operation. The summer meeting probably will be held at Greenwood Springs, Col.

## Nova Scotia Mining Society to Meet in Halifax April 5 and 6

GEORGE D. McDOUGALL, vice-president of the Nova Scotia Mining Society, will preside at the 1921 annual meeting to be held at Halifax, April 5 and 6, the president, A. J. Tonge, being at present in England. Among the papers will be the following: "The McKune System of Applying Byproduct Gas to Open-Hearth Furnaces," by F. B. McKune, superintendent of the open-hearth department of the Steel Company of Canada; "Mine Fire in Springhill," by J. C. Nicholson, New Waterford, district superintendent of mines, Dominion Coal Co.; "New Coal Raising and Screening Arrangements at the Jubilee Colliery of the Nova Scotia Steel and Coal Co. of Sydney Mines," by A. Dawes, division engineer, Nova Scotia Steel and Coal Co.; "Description of the Longwall Method Adopted by the Scotia Co. in the Jubilee Mine," by John Murphy, manager; "Experiences in Deep Undersea Mining in the Princess Colliery of the Scotia Co.," by Alex. A. McNeil, general superintendent of collieries, Sydney Mines; "Sleeping Sickness, Its Deadly Effect on Mining and Metallurgical Engineers in Eastern Nova Scotia with Photographs," by Thomas J. Brown; "Compressed Air," James P. Cotter, of Rand Drill Co., Sydney.

THE NATIONAL COAL ASSOCIATION is urging modification of the present reconsignment rules on coal. It is held that the railroads as well as the coal trade will benefit by changing the rules so that the through rate will apply from the point of origin to the final destination when there has been a reconsignment. Under the present rules, through rates apply from the point of origin to the point where the reconsigning is done. From the point of reconsignment to final destination local rates are applied, as if the shipment were loaded originally at the reconsigning point.

The modifications of diversion and reconsignment rules which are proposed by one of the examiners of the Interstate Commerce Commission apply only to perishable goods, and do not affect coal or coke.

# The Weather Vane of Industry

## News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

"NOTHING is more significant and encouraging at this time," says Archer Wall Douglas, chairman of the Committee of Statistics and Standards of the Chamber of Commerce of the United States, "than the belief in many quarters that better business conditions will prevail as the season advances. As a natural consequence of this growing cheerfulness there is actually more business being done today, both materially and mentally, as it entails the buying of seasonable goods. A general decline in prices is realized to be the only way out of the existing unnatural situation, and while it is a painful process, it is none the less essential. The sooner it is over, the sooner we shall arrive at an enduring basis.

"The almost forgotten slogan 'back to the farm' is being heard once again. This means that farm labor will not be so scarce as a year ago, nor will the hird man command such high wages. Also it now seems very sure that there will not be such acreage of staple farm products as last spring. For there is not the same incentive. Nor will the cost of production be so great. Thus the farmer's problem of the relation of his cost and selling prices seems likely to be solved by supply matching itself with demand. Decreased production will ultimately tend to bring about higher prices, while decreased cost of production insures a better margin of profit. This is the way the natural laws of trade take care of such problems. Resumption in industrial life usually is accompanied by reductions in wages.

"There is a steadily growing interest in the European situation as the conviction deepens that there can be no permanent nor lasting prosperity in this country until the political and economic status of Europe is upon a firm basis. In every productive activity in the United States of great moment we produce more than the domestic demand can possibly consume. So we must needs find a market for this surplus if production is to continue on an efficient and economic basis.

"Europe is our 'best bet' in this regard, and will be so for a long time to come because of her great consuming population whose need of articles of every-day life corresponds closely to our own. Moreover if Europe is ever to pay the huge debt she owes us we must take her goods chiefly in payment. Nor can we expect her to buy our surplus of production unless we resort to the elemental methods of barter and exchange, and take her goods in return."

### Italy and France Sign Trade Pact

The main provisions of the preliminary draft of an Italo-French agreement as outlined in advices received from Rome March 23 are as follows: France is to export to Italy 100,000 tons of coal monthly from the Sarre and other mines at the domestic consumer's price and to assure Italy of scrap iron and steel to the amount of 150,000 tons this year, to be sold at current market prices, and on leaving France to be exempt from export duty. The amount of scrap iron and steel may be increased by an amount equal to the weight of pig iron which Italians may export from France at the same time. Italy shall be bound by the agreement to import 35,000 tons of French pig iron this year and to pay for it the market price.

### Carnegie Steel Mill Reopens

Officials of the Carnegie Steel Co. announced a resumption of operations at the Clairton plant, near Pittsburgh, last week after a ten-day shutdown. Three thousand men returned to work in the blast and open-hearth departments and in the 20-inch and 28-inch mills.

### Increased Demand for Steel Noted

Better buying of steel for construction purposes and the reinstating of a few cancelled orders by automobile builders were features of the steel market, according to the *Iron Age* of March 24, which states that a large number of buyers with small orders have been heard from. These contracts, however, have not resulted in an increase in the average of steel plant activities. The Steel Corporation, it was stated, has been taking new business at the rate of about 15,000 tons a day, or about one-third of capacity.

### More Railroad Shops Reduce

Employment of 1,000 men in the New York, New Haven & Hartford car shops in the Readville (Mass.) district was suspended March 19. Reduction in revenue was given as the reason. The shops usually employ 2,500 men, but only 250 now have work.

A bulletin posted at the Monon R.R. shops at Lafayette, Ind., March 20 notified the employees that the shops would be closed indefinitely after March 24. Approximately 600 men are affected. The roundhouse will be the only mechanical department kept in operation.

### Ford Plants Approach Normal

The Ford factory in Highland Park, Mich., beginning last week, was again on a six-days-a-week schedule for the first time since it was closed in December. After the reopening of the factory in February the men were brought back in four-day shifts. The shifts were on an alternating basis, each group working two weeks. Production gradually grew from 1,000 cars a day, however, until at the present time close to 3,000 are being turned out. With additional men being put on in the various departments daily and the added working hours, officials say conditions in the plant are rapidly approaching normal.

### Railroad Takes on More Workers

Maintenance-of-way employees on the Chicago, Burlington & Quincy R.R. lines west of the Missouri River will be increased by approximately 1,500 men on April 1, according to an announcement made March 23 by W. F. Thiehoff.

The Southern Pacific lines' notice of a reduction in working force effective March 23 has been recalled and the present force of 24,000 men will continue at work.

### Canadian Pacific Lays Off 5,000

More than 5,000 men employed in the Angus shops of the Canadian Pacific Ry. at Montreal were notified March 22 that work would be suspended the following day and resume again April 4.

## Commerce Chamber Creates Transportation Department; to Discuss Coal

CREATION of a department of transportation and communication was announced in Washington March 22 by the Chamber of Commerce of the United States. This department is one of eight into which the chamber has been divided. The manager of the new department will be James Rowland Bibbins, who comes to the chamber from the Arnold Co., Chicago, where he was personal representative of Lieutenant Colonel Bion J. Arnold, consulting engineer and president.

The new department of transportation and communication will have a wide range of activities. It will cover shipping, ocean and inland; steam and electric railroad transportation, air transportation, cables and telegraphs, postal facilities, and highways.

The government's relation to the coal industry will be among the subjects to be considered at the annual convention of the chamber at Atlantic City, N. J., April 27 to 29. The chamber has already gone on record against government regulation of the coal industry as expressed in the Calder bill, and it is expected that it will reaffirm its opposition at the coming meeting.

## Federated Engineering Societies Opens Headquarters in Washington

WITH the opening last week of its suite of offices in the National Savings & Trust Co. Building, in Washington, the Federated American Engineering Societies will direct its work in the future from the national capital. L. W. Wallace, executive secretary of the organization, has been in Washington completing arrangements for the opening of the national headquarters. He will not be able, however, to take up his residence in Washington for another month. In the meantime the offices will be in charge of A. C. Oliphant, assistant secretary.

The principal effort being made at this time at the offices of the Federated Societies is in connection with the extension of the employment service of the organization. In addition to having one central controlling office, it is planned to have branch offices in several of the larger cities. A full report on the employment service is to be made when the exceutive board meets in Philadelphia on April 16. Secretary Hoover, of the Department of Commerce, president of the organization, expects to attend the executive board meeting. At this meeting, a comprehensive report also is to be made on the activities looking to the establishment of a Department of Public Works.

Copies of a model bill on the matter of licensing engineers now are available at the office of the executive secretary. These bills are being sent out to those interested, not with the idea of offering a recommendation one way or the other in the matter but in the hope that any state legislation which may be enacted will follow the general lines of the model bill which is the result of extended study.

## Right of Railroads to Confiscate Coal Has Not Been Settled

WHILE refusing to review decisions of Pennsylvania courts in a case involving confiscation of fuel by a railroad company in a particular case, lawyers in touch with coal cases do not regard the action of the U. S. Supreme Court as finally settling the question as to the authority of railroads to confiscate fuel destined for a consignee for its fuel use.

The case in question was that of the Phoenix Portland Cement Co., of Nazareth, Pa., which contracted with the Piedmont & Georges Creek Coal Co., of Frostburg, Md., for 25,000 tons of gas slack coal from West Virginia mines for delivery at its plant at Nazareth. In September, 1916, the Baltimore & Ohio R.R. confiscated forty-four cars of the coal consigned to it for delivery to Nazareth, and defended its action on the ground that it was part of its fuel contract with the mine, the railroad contract being later than the cement company contract. The District Court for the eastern district of Pennsylvania in 1919 decided in favor of the railroad company in the suit brought by the cement company, on the ground that title to the coal never passed to the cement company with its removal from the mine, and its decision was sustained by the Circuit Court of Appeals for the third circuit. The cement company asked the Supreme Court to review the case, but it declined, and in doing so gave no reasons, as is the custom; hence the conclusion that the court has not definitely passed on the question.

## W. L. Mapother Chosen President of Louisville & Nashville Railroad

THIRTY-ONE years ago W. L. Mapother got a job as office boy at $2.50 a week in the offices of the Louisville & Nashville Railroad Co. On March 16, 1921, he was elected to the presidency of the road he had served in the intervening thirty-one years as office boy, clerk, assistant to the secretary, assistant to the vice-president and finally president. During the war he conducted the road for the government as federal manager, and has assumed responsibility since the death of Milton H. Smith, for many years president of the Louisville & Nashville.

Directors of the road met in New York and after a brief session announced that they had promoted Mr. Mapother from executive vice-president to the presidency.

The new railroad head is forty-four years old, and early in his career attracted the attention of Mr. Smith, who took him into his own office and finally, in 1905, made the young man his assistant. On the recommendation of Mr. Smith he was made an assistant vice-president and director, succeeding Walker D. Hines on the Louisville & Nashville board. Mr. Mapother lives in Louisville.

## "Open Shop" Upheld by Court

THE "open shop" has been upheld in another phase by Supreme Court Justice Erlanger of New York City, who on March 8 granted an injunction against the officers of the Amalgamated Clothing Workers of America, forbidding interference with the business of Joseph Skolny & Co., clothing manufacturers, 906 Broadway. The company, beginning Jan. 27, has been on an open-shop basis, and a strike of the union workers began the same day.

Justice Erlanger ruled that picketing was lawful, but that the application of insulting epithets and in general such actions as may intimidate those choosing to remain at work may bring about a situation of which equity courts will take cognizance. The injunction was granted *pendente lite*, awaiting the trial of the union for $250,000 damages. All told, damages amounting to more than $2,000,000 are asked in various suits against the union.

## Pennsylvania Railroad to Reduce Wages

NOTICES were placed on bulletin boards of the Pennsylvania Railroad system Thursday, March 17, informing officers, subordinate officials and employees that "changed conditions since the present rates of pay became effective warrant a reduction of salaries and wages," and that the management, therefore, proposes to make a reduction in salaries and wages effective April 20.

This action is taken in pursuance of the resolution adopted by the Board of Directors March 9, instructing the executive officers "to give, as promptly as possible, proper notice that it is the intention of this company to reduce salaries and wages of officers and employees to accord with economic conditions."

For the purpose of discussing the proposed revision of salaries and wages a series of conferences has been scheduled, which the representatives of subordinate officials and employees are invited to attend. The object is stated to be that of reaching an agreement as to what constitutes just and reasonable rates of pay in the light of present conditions.

# Purchasing Agents Propose Uniform Coal Contract

FOR some time past the Fuel Committee of the National Association of Purchasing Agents has been engaged in formulating recommendations for reasonably uniform provisions in coal contracts. The purpose of the committee has been to express its idea of a fair contract to be used for the purchase and sale of coal. To avoid overlooking important details and to prevent any bias in its suggestions, the committee conferred with a number of leading producers and wholesalers in the coal field, holding a meeting for this purpose at the Hotel Pennsylvania, New York, on March 15.

The conclusions of the committee are expressed in the form of contract appended. It is believed that the form can be advantageously used for most commercial contracts for the purchase of coal, and where special conditions require special clauses these might be added to the contract.

The form has been prepared simply as a convenience to the members of the National Association of Purchasing Agents and the trade, and is submitted by the committee for the use of those whose requirements it will meet. It has been carefully worked out to cover all general conditions and is particularly designed to prevent misunderstandings between buyer and seller such as arose from the loosely drawn agreements in effect last year.

The administrative council of the Fuel Committee of the National Association of Purchasing Agents is as follows: Chairman, E. H. Hawkins, of E. I. du Pont de Nemours & Co., Wilmington, Del.; H. M. Mitchell, of Rome Mfg. Co., Rome, N. Y.; J. E. Stauffer, of A. M. Byers Co., Pittsburgh, Pa.; R. M. Sedgwick, of Standard Chemical Co., Toronto, Ont.; H. M. Cosgrove, of J. H. Markham, Jr., Tulsa, Okla.; H. L. Ogden, of Gas & Electric Improvement Co., Boston, Mass.

### W. B. Symmes, Jr., Assists in Preparing Contract

In the preparation of the proposed contract from the committee has had the guidance and advice of W. B. Symmes, Jr., of New York, formerly solicitor for the U. S. Fuel Administration. Following is the contract:

AGREEMENT entered into this.....day of..... 19..., between.....of....., hereinafter referred to as Seller, and.....of....., hereinafter referred to as Buyer.

The Seller hereby agrees to sell and deliver and the Buyer hereby agrees to purchase, between the.....day of..... 19... and the.....day of..... 19..., the quantity and kind of coal and at the price hereinafter stated upon the terms and conditions herein contained, to wit:

QUANTITY.....net tons
RATE OF SHIPMENT (approximately).....net tons per month
DESCRIPTION
.....
.....

Proximate Analysis:
Moisture..... Fixed Carbon..... Sulphur.....
Volatile Matter..... Ash..... B.t.u.....
PRICE $..... per net ton of 2,000 lb. f.o.b. cars mines.
POINT OF DELIVERY: f.o.b. cars mines.
TO BE SHIPPED TO.....
DESTINATION .....
ROUTING .....
KIND OF CARS PREFERRED.....

#### TERMS AND CONDITIONS

1. Invoices shall be paid on or before the ..... day of each month for all coal shipped during the preceding calendar month. Non-compliance with said terms of payment shall give the Seller the right to suspend further shipments until all previous shipments are paid for, and if in the judgment of the Seller the financial responsibility of the Buyer shall at any time become impaired and written notice thereof be given by the Seller to the Buyer, the Seller shall have the right to suspend further shipments until adequate security for payment hereunder is furnished by the Buyer. If such security is not furnished within thirty days from such notice, the Seller shall have the right to cancel this agreement.

2. All settlements shall be governed by the actual railroad weights ascertained at the usual points at which railroad shipments from the mine or mines producing the coal shipped hereunder are weighed.

3. Strikes, fires or accidents at the mine or mines where the coal sold hereunder is produced, embargoes, shortage of car supply or other similar occurrences beyond the control of the operator of such mine or mines which prevent or interrupt the shipment of such coal, shall excuse Seller's failure to ship hereunder during the continuance of such occurrence, *provided*

(a) The Seller is the owner or exclusive sales agent of the mine or mines at which the coal sold hereunder is produced, or prior to or simultaneously with the execution of this agreement has entered into a written contract for the purchase of a sufficient quantity of coal from such mine or mines to fulfill the obligations of the Seller under this agreement;

(b) The name of the owners and location of such mine or mines is stated in this agreement;

(c) The Seller gives the Buyer written notice within five days after such occurrence of the exact nature, extent and probable duration thereof with sufficient detail to enable the Buyer to verify the same;

(d) The total available tonnage of said mine or mines during prevention or interruption of shipments as aforesaid is applied pro rata on all contracts then in force or any renewals thereof for the output of such mine or mines exclusive of contracts or sales made after such occurrence;

(e) Shortage of car supply shall not excuse failure to ship hereunder if at the time of such failure there are in force contracts for the sale of more than the rated output of such mine or mines based on the car rating given such mine or mines at the date of this agreement by the railroads on which the same are located.

4. In case of strikes, fires, accidents or causes beyond the control of the Buyer which wholly or partially stop the works of the Buyer, shipments contracted for shall be suspended or partially suspended, as the case may require, upon written or telegraphic notice to the Seller.

5. If the Seller shall fail to ship or the Buyer shall fail to accept the monthly shipments herein provided for and shall be excused for such failure under Articles 3 and 4 hereof, the other party at any time after the expiration of the first three months of the contract period may, by written notice to the party who has so failed to ship or accept, reduce the monthly tonnage thereafter to be shipped and accepted hereunder to an amount equal to the average of the monthly shipments for the three months preceding such notice.

6. The purchase price of the coal specified herein is based upon present agreements with mine employees as to wages, and any increase or decrease in the cost of production of the coal shipped hereunder caused by changes in such wage agreements or by the imposition by State or Federal Statute of a direct tax on coal or the mining thereof or subsequent changes in the rate of such tax shall correspondingly increase or decrease said price of coal on any tonnage thereafter shipped hereunder and affected thereby.

7. The coal covered by this contract is to be used only in the plant or plants of the Buyer and is not to be sold or diverted by the Buyer to other purposes without the consent of the Seller.

8. Waiver by either party of any default by the other hereunder shall not be deemed a waiver by such party of any default by the other which may thereafter occur.

9. Notice sent by telegram or registered mail, addressed to the party to whom such notice is given, at the address of such party stated in this agreement, shall be deemed sufficient written notice in any case arising under this agreement.

10. No understandings, agreements or trade customs not expressly stated herein shall be binding on the parties in the interpretation or fulfillment hereof unless such understandings, agreements, or trade customs are reduced to writing and signed by the respective parties.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed in duplicate by their respective officers duly authorized the day and year first above written.

_____Seller
By
_____Buyer
By

**Strike to Compel Miner to Pay Union Fine.** — A miner at the Inkerman Colliery of the Pennsylvania Coal Co. was fined $20 by the union on the charge that he had compelled his laborer to do a miner's work. The miner returned to work without having paid his fine, and the 400 mine workers at the colliery went on strike, declaring that the coal company should not have permitted him to go back to his working place till he complied with the demand. The strike affected only No. 5 shaft of No. 6 colliery.

# Navy Awards Partial Contracts, Asking Supplemental Bids, To Be Opened March 29

PARTIAL contracts for coal have been awarded by the navy on bids received March 8, and supplemental bids have been called for to be opened March 29. The latter are on bituminous coal under schedules 7,400 and 7,401 and on anthracite coal for delivery at Washington, D. C.; Yorktown, Va.; Norfolk, Va., and Charleston, S. C. The awards, all of which are in gross tons, include the following: H. B. W. Haff, New York, 2,675 tons Brooklyn delivery, total contract $14,471; 240 tons Rockaway Park, N. Y., $8.74; 3,800 tons Iona Island, $18.75; 4,050 tons at $6.75 per ton.

Metropolitan Coal Co., Boston, Mass., 6,800 tons, at $10.24 per ton.

Newport (R. I.) Coal Co., Newport delivery, 2,800 tons, $11; 11,000 tons, $10; 4,300 tons, $10; 224 tons, $15, and 4,000 tons, $15.40.

Peabody Coal Co., Chicago, 25,000 tons, $3.25.

C. Reiss Coal Co., Sheboygan, Wis., 700 tons Great Lakes delivery, $15.57.

Thorne Neale & Co., Philadelphia, 1,900 tons Philadelphia delivery, $3.70.

Whiteley & Foedisch, Philadelphia, for delivery at Philadelphia and vicinity, total contract of $109,500 on basis of $6.90 a ton.

C. G. Blake Co., Cincinnati, contract of $201,600 on basis of $3.36 a ton for Hampton Roads delivery.

Castner, Curran & Bullitt, New York, contract of $1,008,000 on basis of $3.36 a ton, Hampton Roads delivery.

Coney Island (N. Y.) Coal Co., 2,675 tons Brooklyn delivery, $12.49.

Clark Coal Co., Bar Harbor, Me., 520 tons for Bar Harbor delivery, $20.

Davis Coal & Coke Co., Baltimore, contract of $95,750 for Washington and vicinity delivery, $3.83.

Flat Top Fuel Co., Bluefield, W. Va., contract of $80,800 for Norfolk and vicinity delivery, $3.80 a ton, and $57,000 contract at $3.80 for Hampton Roads delivery.

Weston Dodson Co., Inc., Bethlehem, Pa., several contracts for tonnages ranging from 375 tons to 3,800 tons at from $12.14 to $15.24.

Quemahoning Coal Co., Somerset, Pa., 2,400 tons at $7.16 and 2,000 tons at $6.87.

Imperial Coal Corporation, New York, $3.92 a ton for small quantities.

## Washington Mine Workers Strike Against Wage Reduction

### Operators Declare They Have No Contract with Their Men and That Prices Must Be Lowered to Meet Competition

NEARLY all the coal mines of western Washington closed March 16, mine workers to the number of 3,000 men, according to the operators, refusing to accept the reduction of approximately 23 per cent which the coal operators demanded. About twenty-five mines operated by sixteen mining companies are idle. All but one of the large companies operating on the west side of the Cascades have had their mines closed down by the strike. On the east side of the Cascades one large company is idle and several smaller ones. The union leaders say there is no prospect of a local settlement and that the controversy has been left in the hands of the national officers of the United Mine Workers at Indianapolis.

The Northwestern Improvement Co., operating ten big railroad mines on the Roslyn-Cle Elum field is not involved, nor in fact are most of the mines in that field, though they are producing coal for the open market. These mines are not attempting to reduce the wages of their men. The mine workers call the strike a lockout. They assert that only 2,500 men have been thrown out of work.

The state has about 4,000 mine workers and nearly half of them are working in the railroad mines and in other mines that have not been closed. Of the seventy mines in the state about two-thirds are shut down. In a statement the operators declare that they are not breaking any contract or agreement with their men. When the award was made by the federal commission the operators put it into effect but refused to give a written agreement when the miners' representatives made a formal demand for it.

There will be sufficient Wellington and Utah coal to meet any demand, but it is a higher-priced fuel than that from Washington, and if consumers pay more for their fuel it will be because the supply of the cheaper kinds is exhausted rather than because of any increase in the price.

## To Investigate Car Distribution; Service Order 18 Vacated

AN INVESTIGATION has been ordered by the Interstate Commerce Commission as to the reasonableness and propriety of the present car distribution rules as they apply to privately owned coal cars and cars furnished for railroad fuel coal, with a view to prescribing reasonable regulations. The commission has vacated Service Order No. 18, which required carriers to have a contract for the entire output of the mine before it could give that mine any preference in car distribution.

NO SETTLEMENT OF THE new wage scale in western Kentucky had been reached on March 23. On that date secret sessions were still being held by operators and mine workers at Madisonville, Ky. The contract expires tomorrow. The settlement affects only the mines in Hopkins, Christian and Webster counties and parts of Union and Henderson counties.

## Tidewater Coal Exchange Rescinds Penalty Section of Rule 33

AT a meeting of the Tidewater Coal Exchange, Inc., March 24, 1921, it was decided to abolish so much of Rule 33 as levies a penalty for failure to dump credits. The action was retroactive, it is understood, taking effect as of the date Rule 33 was adopted, and therefore all penalties collected for failure to dump coal are to be refunded and all assessments cancelled.

The exchange is economizing. A special committee on reducing expenses of operation has studied the question and as a result the clerical force in the offices at the three ports will be reduced by 25 per cent and all salaries of those remaining will be cut 10 per cent. A net reduction in overhead and operating expenses of 35 per cent thus will be effected.

THE FOLLOWING BIDS to furnish 45,000 tons of bituminous slack coal to the city waterworks were opened by the water department of Buffalo on March 22: Wabash Fuel Co., $2.40 (lowest); also same for different coal, $2.70; Valley Camo Coal Co., Cleveland, $1.80 to $2.75 on a sliding scale, average $2.439; Weaver Coal Co., $2.69; Pittsburgh Coal Co., $2.75. The followig bids were declared informal for failure to agree to certain specifications, such as B.t.u. and other tests; McVicker Coal Co., Cleveland, $2.35 and $2.50; F. B. Sankey, Pittsburgh, $2.50; Weaver Coal Co., $2.54; Pittsburgh & Shawmut Coal Co., $2.88. All bids are net, mine price, subject to $2.51 freight.

# News from the Capital

By Paul Wooton

THAT THE COUNTRY is running headlong into a major transportation disturbance is the belief of George H. Cushing, managing director of the American Wholesale Coal Association, after a visit to ten of the large coal-consuming centers of the East and Middle West. He expects to see belated buying of coal this year, with the result that the latter half of the year will develop the keenest competition for open-top cars. He has figures which show that the movement of road-building material this summer will be heavier by far than ever before. Indications seem to be that building materials will move in very large volume, as will other classes of freight which use open-top cars.

In his inquiry in the centers visited Mr. Cushing found a determined sentiment against priorities in the use of railroad equipment. This feeling has grown so strong that Mr. Cushing believes that priority for coal is a thing of the past. He believes that in the future it will be a case of first come first served.

He finds a strong demand for freight-rate adjustment as between fields and thinks the whole matter of coal rates is destined to be brought before the Interstate Commerce Commission for general readjustment. He expects to see increasing quantities of Indiana and Illinois coal used in the Northwest as a result of the favorable freight rates now in existence. This is coupled with the fact that through forced use of Illinois and Indiana coal for several years the people of the Northwest have learned to burn it and no longer have any particular objection to it.

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THE REMOVAL PROCEEDINGS which the government will have to institute against the non-resident defendants in the case recently brought in Indianapolis will be resisted by the defendants generally. It is understood that steps are being taken to prepare the defense of various non-resident defendants in connection with these removal proceedings. It is expected that a considerable length of time will be required to conduct these proceedings, inasmuch as it is understood that special Assistant Attorney General Slack expects to give those proceedings his personal attention instead of turning them over to local district attorneys. The defendants, so far as is known, have not been advised as to where Mr. Slack will begin this work.

The greatest surprise is expressed at the fact that the Washington wage agreement is cited as a conspiracy between the operators and the representatives of labor. This wage agreement was brought about by Dr. H. A. Garfield, at that time the Federal Fuel Administrator. Industry generally has assumed that agreements made with the sanction of government officials would not be subject to prosecution under the Sherman Act.

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THE CONVENTION OF THE American Wholesale Coal Association will be held in Washington June 7 and 8. The hope is expressed by George H. Cushing, managing director of the association, that operators and retailers will sit in at the convention, so as to get the wholesalers' orientation. With the exception of the banquet, there is to be no set program. The sessions are to be taken up entirely with discussion on the floor. This will be conducted under prepared leadership with the idea of bringing out what the members of the association think of proposed legislation, trade conditions and of the methods which could be adopted to stabilize the coal business.

ANNOUNCEMENT BY THE Interstate Commerce Commission that it expects to call for all the facts in the matter of assigned cars to be presented at a formal hearing came as a surprise to all concerned. The announcement was made simultaneously with the cancellation of Service Order No. 18, which cancelled the existing authority for the railroads to use assigned cars in the procurement of fuel coal. There is some uncertainty as to just why such prominence is given in the statement to the use of privately-owned cars on an assigned basis. Only an insignificant number of privately-owned cars is involved in the transportation of coal for railroad purposes.

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THE PUBLIC UTILITIES made an eleventh-hour impression on the Calder committee, as is evidenced by their having been dragged prominently into the final report. This constitutes, it is pointed out, another example of the tendency of the committee to depart from its sphere. The Calder committee was authorized to make its investigation with the general understanding in the Senate that it was to look into housing matters only. It developed, however, that the authority had been so drafted as to permit the investigation of any activity in the country.

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PROBABILITIES POINT TO the resumption of coal activities on the part of the Senate early in the extra session which will convene on April 11. It is expected that there will be some competition between Senators Frelinghuysen and Calder as to which one is to direct the activities in this regard. In this the advantage is with Senator Frelinghuysen, who is known to be close to the administration, as the investigation falls more properly within the field of the Committee on Interstate Commerce and from the fact that his ideas of the legislation needed are much less drastic than are those advocated by the New York Senator.

When Senator Calder introduces a revised bill at the next session, it is expected that it will be referred to the Interstate Commerce. Committee. In case the bill is committed to the Committee on Manufactures it is believed that such action will be contested.

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IN A LETTER TO the Secretary of the Interior George H. Cushing says in part:

"Speaking the mind of my associates, we hope that while co-operating with your department in every practical way we will not have to combat the efforts of your Geological Survey to persuade Congress to put our industry under government control and thus deprive us of our liberty. The work of the Survey is valuable in many ways, and we can only regret that it has taken such a decided turn toward experimental legislation that it is found now advocating almost anything which heads in that direction."

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IT IS UNDERSTOOD THAT Franklin T. Miller, formerly special adviser to the Calder Committee on Reconstruction and Production, is being considered by the Secretary of Commerce for an important assignment in the Department of Commerce, where he will have to do with matters pertaining to the building industry. In connection with his work with the Calder Committee Mr. Miller made an extended study of the coal situation. Secretary Hoover already has stated that he feels that the Department of Commerce should have a voice in coal matters, in which event Mr. Miller's services would be available in that connection.

## Formation of Charleston Exchange Nears Completion; New Rule on Bunkering

SHIPPERS of coal through the new Tidewater Coal Exchange at Charleston, S. C., met in Washington on Friday, March 25, 1921, with Vice President Green, Freight Traffic Manager Shaw, I. L. Graves, district freight agent, and Mr. Andrews, general superintendent of transportation of the Southern Ry., to complete details of the organization of that exchange. O. P. Hood, chief mechanical engineer of the Bureau of Mines; H. M. Payne, representing the New York exchange; W. A. Johnson, of Johnson & Co., bunkering agents at Charleston, S. C.; Mr. Van Dobler, shipping agent of the Carolina Co., Charleston, S. C., and S. T. Snead, of the Sewall's Point exchange, also were present.

Arrangements were made with the Bureau of Mines to sample and analyze coal that will be shipped through the exchange, according to the method that has been adopted by several other exchanges. A contract is being drawn up for consideration at the next meeting to provide for participation of the Southern Ry. in this exchange. Gibbs L. Baker is preparing articles of incorporation.

Following the meeting, the Southern Ry. issued an order cancelling its present rule which requires a vessel bunkering at the piers to move away after the expiration of eight hours even though its bunkers have not been filled. Under the new rule ships taking on cargo receive preference, but ships taking bunkers hereafter will be allowed to complete the work before being required to move.

## Anthracite Shipments Set February Record

SHIPMENTS of anthracite in February, as reported to the Anthracite Bureau of Information, in Philadelphia, established a new record for that month, amounting to 5,966,101 gross tons. The nearest approach to this figure for February shipments during a normal year was in February, 1912, when shipments amounted to 5,875,968 tons, and the next nearest approach was in the war year of 1918, when 5,812,082 gross tons were shipped. The shipments last month exceeded the previous month of January, a long month, by 225,563 tons and exceeded February of last year by over 900,000 tons.

Shipments by originating carriers were:

| | February, 1921. | January, 1921. |
|---|---|---|
| Philadelphia & Reading | 1,170,753 | 1,172,873 |
| Lehigh Valley | 1,063,508 | 1,058,127 |
| Jersey Central | 515,551 | 470,704 |
| Lackawanna | 920,788 | 910,260 |
| Delaware & Hudson | 813,191 | 814,491 |
| Pennsylvania | 426,350 | 451,879 |
| Erie | 633,706 | 606,602 |
| New York, Ontario & Western | 153,017 | 156,564 |
| Lehigh & New England | 269,237 | 99,038 |
| Total | 5,966,101 | 5,740,538 |

## Says Many Sellers and Buyers Do Not Know Coal as Product; Early Buying Urged

PURCHASING agents of Connecticut, meeting with the Fairfield County (Conn.) branch of the American Society of Mechanical Engineers at Bridgeport on March 24, 1921, enjoyed an interesting program, the central topic of which was the fuel question. A. Brewer, chief engineer of the Bridgeport Brass Co., the presiding officer, introduced in turn C. C. Phelps, of the Uehling Instrument Co., who spoke on "Fuel As the Engineer Burns It," and W. T. Birney, purchasing agent of the Winchester Repeating Arms Co., who discussed "The Purchasing Agent's Problems." These speakers were followed by G. C. Squiers, of the George E. Warren Coal Co., and Dr. H. M. Payne, who gave the meeting the operators' and transshippers' viewpoint on the coal question.

One of the striking statements made by Mr. Squiers was that too many coal salesmen do not know coal as a product and some purchasing agents are no better. There is lack of knowledge here that can be overcome, but too much dependence should not be placed on analyses of coal. An analysis gives a good idea of the product but does not always tell the whole story. The average operator uses analyses for advertising purposes and the buyers use them to guide in making purchases. Mr. Squiers urged the purchasing agents not to stay out of the market too long, because of prospective railroad trouble and possible mine labor disturbances.

## Miners Likely to Ask Change of Venue in Indiana Conspiracy Case

WITH copies of the indictments, comprising 125 pages, against miners and operators for violation of the Sherman Anti-Trust law ready for distribution by officials of the District Attorney's office of the Indiana district of the United States court, attorneys for the defense have begun a careful study of the indictment itself. The hearing is set for May 3, but in all probability there will be a postponement at that time. There are many speculations as to what course the case will take when it finally does come up for trial. Many persons who are said to be very close to the miners' organization predict that they will ask for a change of venue from Judge Anderson's court.

## British Miners Refuse Local Wage Scales

FINAL decision was reached on March 24 by the miners of Great Britain as to the terms offered offered by the mine owners. They refuse to accept a wage based on district conditions. They argue that the work of mining is a standard work and should be paid a standard wage regardless of the tonnage obtained in return for the labor expended and regardless of the price obtained for the coal sold.

The difficulty has arisen out of government decontrol. Yorkshire and Northumberland mine workers are ready to accept the owners' terms but South Wales, Scotland and Lancashire are not. On March 31 the government will release the mines from its control, and the operators are demanding that on that date the mine workers accept the new wage schedules. Those operators who have mines that are losing money cannot reconcile themselves to a uniform schedule, and the public cannot look with equanimity on the closing of large numbers of mines needed for industry.

## Jermyn Coal Co. Demands Lower Wage Rate

AFTER having closed its mine at Old Forge for ten days the Jermyn Coal Co., through J. J. Jermyn, announced on March 19 that wages must be reduced or the mine would not be reopened. Mr. Jermyn said that when the mine was closed it was losing $1.35 on every ton of coal mined.

As the retail dealers in Scranton cut the price on March 18 50c. a ton, the loss per ton according to Mr. Jermyn would be $1.85. Public surmise is that the Pennsylvania Coal Co. which has closed its mine at Old Forge will make a similar proposition. The anthracite agreement to which the larger companies are all parties prevents any reduction till March 31 of next year.

## Geological Survey to Investigate Coal Stocks as of April 1

STOCKS of coal on April 1 will be investigated by the Geological Survey. Only less uncertain than how much coal is being consumed and yill be required this year is the subject of how much coal is on hand. Thousands of consumers—industrials, by-product coke plants, steel mills and public utilities—and also retail coal dealers are being asked to report their stocks as of Jan. 1 and April 1, 1921, and the quantity of coal consumed in the intervening three-month period. Through the courtesy of A. G. Gutheim, manager, Public Relations Section, Car Service Division, American Railway Association, data on railroad stocks will simultaneously be acquired by that organization.

Everyone receiving a questionnaire from the Geological Survey is urged to report fully and promptly, as the final report will be of value in proportion as it is full and prompt.

# Calder Report, Denying Coal Shortage Existed Last Year, Arraigns Big Companies as Well as Wagon Mines

By Paul Wooton
Washington Correspondent

SENATOR Calder made public on Monday his report to the Senate of the finding of the Select Senate Committee on Reconstruction and Production. The transcript of the hearings before the committee fill three volumes, but the report boils down its conclusions into sixty-one printed pages. The major part of the voluminous record concerns coal, but the report devotes only sixteen pages to that subject.

Reviewing the coal situation in 1920 the report states that no coal shortage actually existed and had there been a real shortage there was no justification or excuse for the "exorbitant prices" that were charged. Depleted stocks in April and a temporary falling off in production are stated to have existed, but, continues the report, "Production, however, was sufficient with proper distribution to have taken care of all current need."

Government purchases of coal in 1920 are reviewed with particular reference to the War Department contract with the Wentz Co. The extent to which jobbers shared in the high prices for coal charged the War Department is illustrated in the report by a table giving the names of middlemen, cars sold and margin taken in the transactions.

### Cites High Prices Charged for Coal

Prices paid last summer by public utilities in New England and New York are quoted as high as $21, delivered, and it is stated that retail dealers in New England paid on a substantial tonnage of anthracite $6 per ton above the company circular.

"Proof of Excessive Prices" for coal, "Responsibility for Excessive Prices" and "Location of Highest Prices" are three successive chapters in the report's indictment of the coal industry, which in judicial language hammers on the facts that of the high prices there is no doubt, that they were profiteering prices the public is convinced, that no one in the coal trade defends them, that the operators, jobbers and retailers were prone to quarrel about the responsibility, and that big companies as well as wagon mines shared in the huge profits. Associations of coal operators are stated to be factors influencing high prices but jobbers and retailers' organizations are not mentioned. Anything that "seriously affects the coal, either in unreasonably raising the price thereof or in cutting off the actual supply in any portion of the country, approaches a public calamity," it is stated, because "coal is such a universal public necessity."

The committee finds conflicting evidence and great divergence of opinion as to the causes of high prices, but states that there is no doubt that "operators, operator-brokers, wholesalers and retailers," and a "horde of speculators" participated in the embarrassment of coal prices.

As relates to coal, the report concludes with the statement that "it would be a gross dereliction of duty for Congress to shut its eyes to such possibilities or probabilities [as a return of the condition of 1920] and to fail to take some steps to prevent the control in such recurring emergencies from being left in the hands of those whose conduct during the last year amounted to a national scandal."

Particular stress is laid by the report of the committee on the authority given the Interstate Commerce Commission by the Transportation Act to declare "ex parte an 'emergency,'" it being stated that priorities in practice invariably create situations which eventually are worse than those which they are intended to mitigate. In the words of the report "the granting of priorities or preferential transportation service may easily lead to insidious and predatory practices, favoritism, special privileges, unjust discriminations, and profiteering in the sale of human necessities." One of the recommendations made by the committee for legislations has for its purpose limiting the power of the Interstate Commerce Commission to declare emergencies because "that commission, by its priorities orders, has delayed the carriage of structural material." It will be remembered that it was the preference given coal in the use of open-top cars that first aroused the ire of Senator Calder and Franklin T. Miller against the coal industry.

Turning to the section of the report dealing with the building industry one looks in vain for any charge of "unconscionable profiteering in price" in the building industry. In a discussion of the trend of general and building prices it is stated that "after the supply of commodities is liquidated, there may be a wave of upward prices," but there is no suggestion, as in the case of coal, that it would be a "gross dereliction of duty for Congress to shut its eyes to such possibilities or probabilities."

It is simply "to be hoped that prices may become stabilized at a proper new level." Fuel, transportation and the direction of credit and labor are stated to be the fundamentals affecting the building industry, and apparently any large profits taken in the building industry last year were the result of conditions in these fundamentals, although Senator Calder does admit that the Lockwood committee of New York City developed the fact that certain agencies in the building industry "united in action," possibly to restrain trade.

The very high prices of building materials, acknowledged to be one of the contributing causes of the housing shortage, a subject which it was presumed Mr. Calder's committee was authorized to investigate, are "yet to be exactly determined" with reference to "what proportion of these high prices is due to the high cost of fuel, etc." The committee makes a bid for further life by stating that more time than has been available would be necessary to determine this factor.

## Supreme Court Decides Against Eldorado Co.

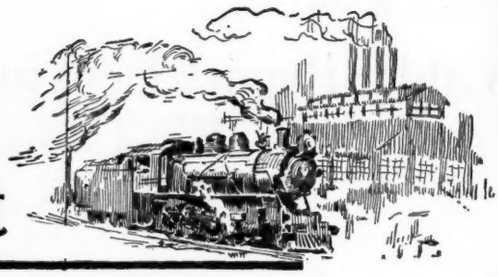
ON Monday, March 28, the U. S. Supreme Court, in an opinion by Justice Clarke, sustained the imposition of income taxes on the Eldorado Coal & Mining Co. by the Collector of Internal Revenue for the First District of Illinois, this being one of the important tax cases which has been pending for some time. The Eldorado Company sought to recover the assessment of income and excess profits taxes for 1917 on the ground that the tax was not based on income.

The coal company, an Indiana corporation, operated a bituminous coal mine which it sold in May, 1917, for cash. The company retained its accounts receivable and prior to September, 1917, distributed to its stockholders proportionately to their ownership of stock the cash received from the sale of the accounts receivable in question. The corporation, however, was not dissolved nor its charter surrendered, because there were unsettled liabilities against it for Federal income and excess profit taxes. Otherwise its affairs were wound up.

It was asserted that, taking the fair market value as of March 1, 1913, or the capital assets of the company invested and employed in its business, and adding thereto the cost of additions and betterments and subtracting depreciation and depletion to the date of sale there was an appreciation in the value of the property from March 1, 1913, of $5,986, and it was on this profit realized by the sale that the assessment of $3,073 was made which the company paid and which it sought to recover. The court sustains the tax on the ground that gain derived from the sale of personal property is taxable.

In the case of Henry Friedman vs. the U. S. the court in an opinion by Justice McKenna sustained the decision of the Court of Claims denying recovery by Friedman of $3,600 paid for Government coal lands which he claims were in excess of charges for the lands authorized by law.

# Production and the Market



## *Weekly Review*

GENERAL and genuine alarm is voiced in all reports from market centers and coal fields over the soft-coal situation. Thousands of mines have not had orders for a pound of coal for two months, and with a general average for the country of a bare two days a week operation those fortified with some business are seldom making over three or four days a week. Production has steadily dropped during fourteen weeks from more than 2,000,000 tons a day to 1,000,000 tons. From the middle of December to the middle of March output has been halved, because there is no demand for the coal.

That the country is drifting into another spasm of car shortage and high coal prices through improvident buying by steam-coal users is the fear generally expressed in all quarters. All that is needed to bring on a repetition of coal trouble is for consumers to hold off thirty to sixty days more and for business to pick up even moderately.

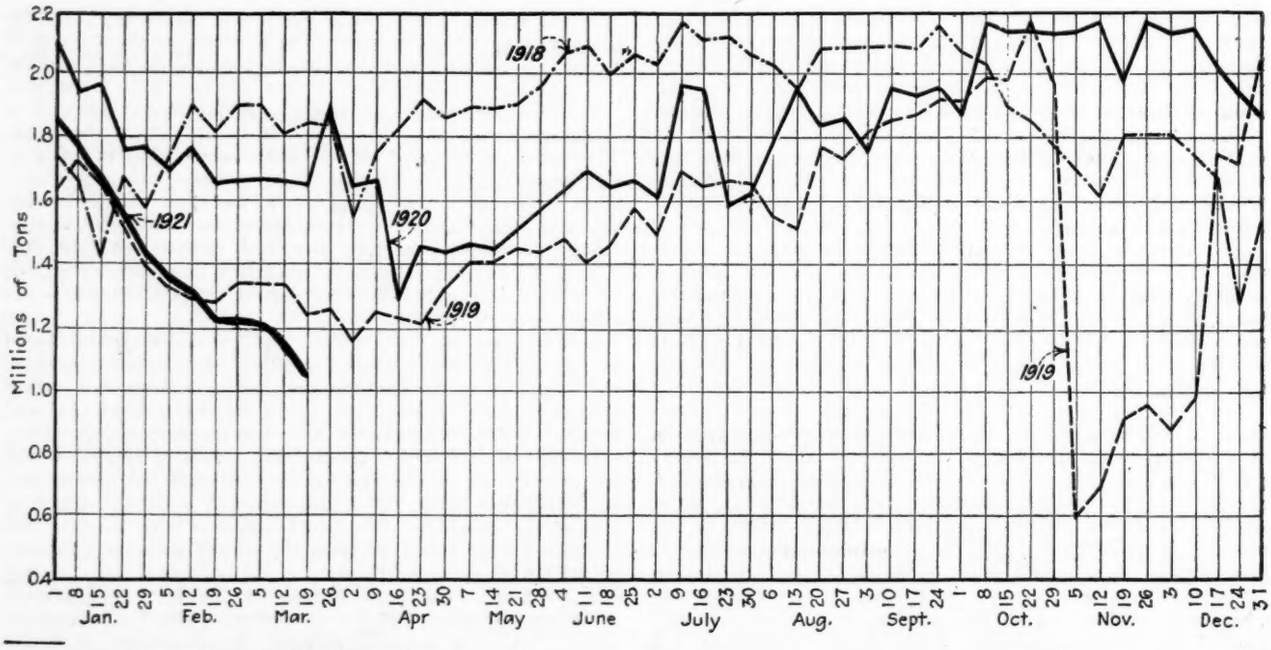
Today ends the coal year of 1920-1921 and tomorrow the new begins. A large tonnage under contracts expiring today has not been renewed and the "contracting season" is just as late this year as spring is early. In the East some public utilities have closed at $3.75 as a compromise between $3.50 offered and $4 asked. The smokeless market is temporarily jammed because shippers will not take on business at the lowest figures quoted the navy—that is around $3 per net ton at the mines.

Spot prices are expected to gain gradually from now on, even with no increase in output, because with contracts expired more business will be on a current basis and because contract prices are from 90c. to $1 above spot prices. Until the spot market overtakes the expected contract level business will be on a hand-to-mouth basis. *Coal Age* index of spot prices for March 27 is 101, a gain over the previous week of two points.

### Railroads May Be Critical Factor

It is admittedly difficult to correctly appraise the danger in the situation. The only element in the problem that is definitely known is production. It is not known whether the rate of consumption at this time is above or below the rate of production—that is, whether stocks are decreasing or increasing—and furthermore the actual size of stocks is a matter of doubt. These two factors, it is announced this week, the Geological Survey will investigate by a special study of stocks

### Daily Average Production of Bituminous Coal*

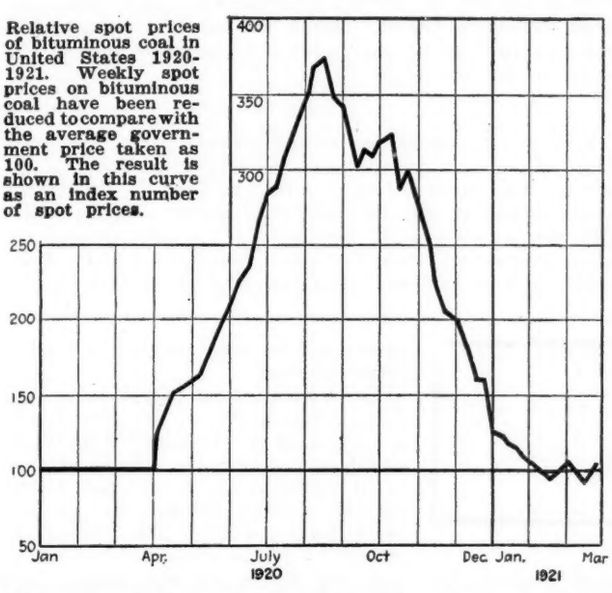



*From weekly report of Geological Survey.

and consumption in the first quarter of 1921. Another element in the situation with regard to which experience alone will give the answer is whether the railroads in the past four or five months have drifted so far behind in upkeep and maintenance as well as morale as to prevent their responding quickly to sudden stimulus in demand. The item of greatest uncertainty, however, is the country's requirement for coal for the next twelve months—that is, to what extent business will pick up. It can safely be said that the consumer with any certainty of coal requirements in the next twelve months who does not both make provision through purchase, whether spot or contract, for his coal and who does not at once begin accumulating it in his own storage yard is playing with fire

## BITUMINOUS

Soft-coal production took another drop during the week ended March 19, when the total output reached 6,468,000 net tons. This is a decrease of 433,000 tons, or 6 per cent, when compared with the week ended March 12. The daily average production of 1,078,000 tons is the lowest figure touched at any time during the past four years except during the 1919 strike. A still further decline is indicated in the total loadings for the first two days of the week March 21-26.




**Relative spot prices of bituminous coal in United States 1920-1921. Weekly spot prices on bituminous coal have been reduced to compare with the average government price taken as 100. The result is shown in this curve as an index number of spot prices.**

With the advent of the new coal year but few contracts have been signed, indicating an intention on the part of buyers to rely on the spot market for current requirements. This apparently is to the entire satisfaction of a number of the trade, who feel that reserve stocks will be fairly well depleted early in June, when buyers must again enter the spot market.

There are many who feel that when resumption of buying occurs the strain on our weakened transportation system will bring about another car shortage at the mines. Repairs to equipment, because of inability of the roads to finance the work, have not kept pace with ordinary wear and tear of the light traffic during the past few months

## Estimates of Production

FROM THE WEEKLY REPORT OF THE GEOLOGICAL SURVEY
(NET TONS)

### BITUMINOUS COAL

Total Bituminous, Including Coal Coked

| | 1921 Week | 1921 Coal Year to Date | 1920 Week | 1920 Coal Year to Date *a* |
|---|---|---|---|---|
| Mar. 5*b* | 7,278,000 | 497,883,000 | 10,304,000 | 407,900,000 |
| Daily average | 1,213,000 | 1,745,000 | 1,717,000 | 1,564,000 |
| Mar. 12*b* | 6,901,000 | 504,784,000 | 10,277,000 | 458,178,000 |
| Daily average | 1,150,000 | 1,733,000 | 1,713,000 | 1,567,000 |
| Mar. 19*c* | 6,468,000 | 511,252,000 | 10,348,000 | 468,527,000 |
| Daily average | 1,078,000 | 1,719,000 | 1,725,000 | 1,570,000 |

(*a*) Less 2 days' production during first week in April to equalize number of days covered for the two years. (*b*) Revised from last report. (*c*) Subject to revision.

### ANTHRACITE

| | 1921 Week | 1921 Coal Year to Date | 1920 Week | 1920 Coal Year to Date *a* |
|---|---|---|---|---|
| Mar. 5 | 1,902,000 | 83,857,000*b* | 1,604,000 | 85,657,000 |
| Mar. 12 | 1,926,000 | 85,783,000*b* | 1,648,000 | 87,305,000 |
| Mar. 19 | 1,688,000 | 87,471,000*c* | 1,601,000 | 88,906,000 |

(*a*) Less 2 days' production during first week in April to equalize number of days covered for the two years. (*b*) Cumulative production revised on basis of more detailed information. (*c*) Subject to revision.

### BEEHIVE COKE

| Week Ended Mar. 19 1921*a* | Mar. 12 1921*b* | Mar. 20 1920 | 1921 to Date | 1920*c* to Date |
|---|---|---|---|---|
| 118,000 | 162,000 | 467,000 | 2,375,000 | 4,994,000 |

(*a*) Subject to revision. (*b*) Revised from last report. (*c*) Less 2 days' production during New Year's week to equalize number of days covered for last two years.

## Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

| | Market Quoted | Gov't Price | Mar. 1 1921 | Mar. 22 1921 | Mar. 29 1921† |
|---|---|---|---|---|---|
| **Low-Volatile, Eastern** | | | | | |
| Pocahontas mine run | Columbus | $2.35 | $3.50 | $3.25 | $3.25 |
| Pocahontas lump | Columbus | 2.60 | 5.75 | 5.50 | 5.50 |
| Pocahontas mine run | Chicago | 2.35 | 3.75 | 4.15 | 4.15 |
| Pocahontas lump | Chicago | 2.60 | 5.25 | 5.00 | **4.75@ 5.50** |
| *Smokeless mine run | Boston | .... | 5.80 | 5.85 | 5.75@ 6.00 |
| Clearfield mine run | Boston | 2.95 | 2.55 | 2.50 | 2.00@ 3.00 |
| Somerset mine run | Boston | 2.95 | 3.10 | 3.00 | 2.40@ 3.60 |
| Pool 1 | New York | 2.95 | 3.55 | 3.30 | 3.10@ 3.50 |
| Pool 1 | Philadelphia | 2.95 | 3.55 | 3.50 | 3.50 |
| Pool 1 | Baltimore | 2.95 | 3.15 | 3.05 | **3.00@ 3.25** |
| Pool 9 | New York | 2.95 | 3.05 | 2.75 | 2.50@ 3.00 |
| Pool 9 | Philadelphia | 2.95 | 3.00 | 3.05 | **3.00@ 3.25** |
| Pool 9 | Baltimore | 2.95 | 2.75 | 2.90 | 2.75@ 3.00 |
| Pool 10 | New York | 2.95 | 2.65 | 2.65 | 2.35@ 3.00 |
| Pool 10 | Philadelphia | 2.95 | 2.75 | 2.50 | **2.75** |
| Pool 10 | Baltimore | 2.95 | 2.50 | 2.35 | **2.25@ 2.75** |
| Pool 11 | New York | 2.95 | 2.30 | 2.20 | 2.15@ 2.25 |
| Pool 11 | Philadelphia | 2.95 | 2.25 | 2.30 | *2.00* |
| Pool 11 | Baltimore | 2.95 | 2.25 | 2.30 | 2.25@ 2.35 |
| Pool 71 | New York | 2.95 | 3.05 | 2.75 | **2.75@ 3.25** |
| Pool 71 | Philadelphia | 2.95 | 3.00 | 2.75 | ..... |
| Pool 71 | Baltimore | 2.95 | 3.00 | .... | 2.75@ 3.25 |
| **High-Volatile, Eastern** | | | | | |
| Pool 34 | New York | 2.50 | 2.30 | 2.00 | 1.75@ 2.25 |
| Pool 34 | Philadelphia | 2.50 | 2.15 | 2.15 | 2.00@ 2.25 |
| Pool 34 | Baltimore | 2.50 | 2.15 | 2.00 | **2.00@ 2.15** |
| Pittsburgh mine run | Pittsburgh | 2.35 | 2.35 | 2.25 | 2.00@ 2.50 |
| Pittsburgh se'd gas | Pittsburgh | 2.35 | 2.85 | 2.85 | 2.75@ 3.00 |
| Kanawha mine run | Columbus | 2.70 | 2.50 | 2.25 | **2.35** |
| Kanawha lump | Columbus | $2.95 | $3.75 | $3.25 | $3.25 |
| Hocking mine run | Columbus | 2.50 | 2.25 | 2.15 | **2.00@ 2.50** |
| Hocking lump | Columbus | 2.75 | 3.50 | 3.25 | **3.25@ 3.50** |
| Pitts. No. 8 mine run | Cleveland | 2.35 | 2.35 | 2.15 | **2.20@ 2.35** |
| Pitts. No. 8 lump | Cleveland | 2.60 | 3.75 | 3.50 | 3.25@ 3.75 |
| **Midwest** | | | | | |
| Frankl n, Ill., mine run | Chicago | 2.35 | 2.75 | 3.35 | 3.25@ 3.50 |
| Franklin, Ill., lump | Chicago | 2.55 | 3.80 | 3.55 | 3.45@ 3.65 |
| Central Ill., mine run | Chicago | 2.35 | 1.85 | 2.00 | **2.00@ 2.50** |
| Central Ill., lump | Chicago | 2.55 | 2.60 | 2.50 | **2.75@ 3.00** |
| Ind. 4th Vein mine run | Chicago | 2.35 | 2.60 | 2.65 | 2.25@ 3.00 |
| Ind. 4th Vein lump | Chicago | 2.55 | 3.30 | 3.15 | 2.75@ 3.50 |
| Ind. 5th Vein mine run | Chicago | 2.35 | 2.40 | 2.50 | 2.25@ 2.75 |
| Ind. 5th Vein lump | Chicago | 2.55 | 3.05 | 2.75 | 2.25@ 3.25 |
| Standard mine run | St. Louis | 2.35 | 1.95 | 1.85 | 1.75@ 2.00 |
| Standard lump | St. Louis | 2.55 | 2.60 | 2.60 | *2.40@ 2.50* |
| West Ky. mine run | Louisville | 2.35 | 2.25 | 2.50 | 2.50 |
| West Ky. lump | Louisville | 2.60 | 3.15 | 3.15 | *2.75@ 3.85* |
| **South and Southwest** | | | | | |
| Big Seam mine run | Birmingham | 2.45 | 3.05 | 2.95 | *2.70@ 3.00* |
| Big Seam lump | Birmingham | 2.75 | 3.75 | 3.75 | *3.00@ 3.85* |
| S.E. Ky. mine run | Louisville | 3.00 | 2.75 | 2.75 | *2.50@ 2.85* |
| S.E. Ky. lump | Louisville | 3.25 | 4.00 | 3.60 | *3.40@ 3.65* |
| Kansas mine run | Kansas City | 3.50 | 4.50 | 4.50 | 4.50 |
| Kansas lump | Kansas City | 4.00 | 5.50 | 5.50 | 5.50 |

* Gross tons, f.o.b. vessel, Hampton Roads. Quotations on Pocahontas mine run, Boston market, heretofore quoted included both Pocahontas and New River and will henceforth be quoted as West Virginia "Smokeless."

† Advance over previous week shown in **heavy type**, declines in *italics*.

and rolling stock is not now in as good condition as last summer. The average operator feels, therefore, that his present inability to contract for his tonnage may work out to his benefit at a later date, when free coal will again command a respectable figure.

*Coal Age* index of spot prices rallied two points during the week ended March 29, closing at 101. Midwest markets are slightly firmer and steam sizes and a stricter adherence to spring price schedules aided in bringing the index figure up from the week ended March 22.

Lakes business is dragging and it is becoming apparent that because of this inactivity the volume of shipments to the Northwest this season is likely to fall far short of that for any previous year. Rail shipments to New England declined during the week ended March 19. According to the Geological Survey 3,006 cars were forwarded through the five rail gateways, as compared with 3,208 cars the week before. Only routine business is being conducted at Tidewater piers. Shipments coastwise and overseas are confined to contract orders. For the first twenty-three days of March less than 600,000 tons were dumped at Hampton Roads.

The Bureau of Mines has rejected bituminous coal bids recently received which are higher than $3.75 per gross ton or $3.3482 net ton f.o.b. mines on New River coal; those higher than $3.92 gross ton or $3.50 net ton on Maryland, Pennsylvania and northern West Virginia coal and all bids on gas coal except the one at $2.52 gross or $2.25 net ton. Bids not eliminated by this action are still under consideration.

### ANTHRACITE

For the first time in several weeks hard-coal production slumped sharply. During the third week of March the total output was 1,688,000 net tons, a decline of more than 230,000 tons from the week preceding. With only ten working days remaining the cumulative output for the coal year stands at 87,471,000 net tons, some 1,400,000 tons short of the output for the 1921 coal year to date.

The Bureau of Mines received but three bids on March 26 for anthracite coal for the Government Fuel Yard at Washington for the year beginning April 1. The Philadelphia & Reading Coal & Iron Co., the Weston Dodson Co. of Bethlehem and the Coal Mont Moshannon Coal Co. of Philadelphia were the bidders on 7,800 tons of furnace, 8,800 tons of egg, 8,200 tons of stove, 1,700 tons of chestnut, 480 tons of red ash and 2,600 tons of pea. The P. & R. bid $7.75 for furnace and egg, $8.05 for stove and nut, $6.40 for pea and $8.55 for red ash. The Moshannon company bid $8.75 for furnace, egg, stove and nut; $10 for red ash, and $7.50 for pea. The Weston Dodson Co. bid $9.40 on furnace, $8.93 for egg, $9.43 for stove and chestnut, and $6.43 on pea coal.

At Philadelphia, price muddles are retarding buying. The companies, following out their intentions announced some time ago, have not made any spring reduction and retailers are unable to move their stocks. At New York price cuts on both mine and retail failed to stimulate buying. The Baltimore trade is in a quandary over the uncertainty of spring prices and but little coal is moving. Buffalo reports an accumulation at the Lake docks—already there are 150,000 tons of hard coal afloat with not much prospect of an early shipping season because of the sluggish iron ore market.

### COKE

Beehive coke production fell off sharply during the week ended March 19. According to the Geological Survey 118,000 net tons were produced. This probably is the lowest level reached at any time in recent years. The Connellsville market reflects the condition in pig iron, that of absolute stagnation. Spot furnace is $4@$4.50, foundry $5.25 @$6; contract furnace is nominal, $4.75@$5; foundry, $6.

# Reports From the Market Centers

## New England

### BOSTON

*April Market Will Be Closely Watched — No Increase in Demand — Hampton Roads Contract Price Foreshadowed—Anthracite Easy—Boston Retailers Reduce Prices.*

**Bituminous**—With receipts declining rapidly because of expiring contracts and large reserves on hand at most industrial plants, the situation here the next few weeks will bear careful study. Some time there will be a point where consumption exceeds receipts sufficiently to warn buyers they must again watch the market but whether that will come in May or in June remains to be seen. A large number of consumers are taking the position they will buy on the spot market this season waiting for bargains.

This may be a policy all right to outline in March, but there are dangers involved from the buyer's standpoint. The operator cannot but welcome such a program for if held consistently it will absorb spring and summer output, if only to a limited extent, and if the market continues as it is headed now there will be sufficient request for steam grades in the fall and winter to take all the good coal that can be mined.

There is no perceptible increase in spot demand, nor is there more than scattering inquiry for contracts. Only certain special lines are having any business worth mentioning and there continue widespread complaints over the utter lack of buying power among small merchants who deal direct with the public.

Among the producing interests there is much anxiety over the outlook for May and June. So many open orders have now been shut off that operators are hard put to it to keep mines running. The volume for Tidewater is very light, especially from central Pennsylvania. Export and bunker trades absorb only minimum requirements, and coastwise there is only a small tonnage moving. Shippers who have made desperate attempts to sell spot or for delivery during the next three months have accomplished very little and no response whatever is now looked for until the last of April or the first of May. New England has large stocks and relatively only a few buyers will be interested in the market before summer.

As in other years the bids on the Navy requirements at Hampton Roads seem to have set the pace for contracts on the smokeless coals. The $3.50 basis is not taking at all, and the only recent contract business closed was on the basis of the low Navy bids, namely, $3 per net ton at the mines for Pocahontas and New River. It has always been difficult in any such situation as we are going through now to lift prices after large organizations have submitted bids, and until once more there is a slight excess of demand over supply there will not be much advance from the $3 base price.

Several market cargoes have been hawked about the past week but practically all have been absorbed. It is interesting to note that the same shippers who sent this coal forward on a venture in order to relieve congestion at the Hampton Roads piers are asking more than $3 more for futures than they themselves disposed of coal here to public institutions. It simply goes to show how futile it is to force fuel upon a dead market.

Pocahontas and New River on cars Boston and Providence are held at $8.25 @$9.50. Other spot prices are shown in the Weekly Review.

**Anthracite**—Domestic sizes are in easy supply, and demand is extremely quiet. Two of the companies have not yet reduced prices, but there is an intimation that the larger of the two will do so. There is next to no call now for steam sizes; even contracts have

been canceled or shipment suspended. The public is bound to be very slow taking supplies this spring and for that reason wholesale business will doubtless slow up when retailers and others who store coal have reached the maximum both for money and storage.

Boston retail dealers announced a reduction of $1 on stove and chestnut, and of $1.25 on broken, egg, and pea, making the new prices $15 for stove and chestnut, $14.75 for broken and egg, and $13 for pea.

## Tidewater—East

### PHILADELPHIA

*Anthracite Price Uncertainty Holds Back Trade — Highest Prices Still Effective — Retail Demand Listless — Bituminous Market Still Off — Slight Activity in Contracts.*

**Anthracite**—Business both wholesale and retail has almost completely subsided due to the price muddle. So far as the dealers are concerned they are absolutely in the dark as to wholesale prices and hardly know how to shape their course for the spring business which should now be well under way. Even though certain of the independents have announced spring reductions of 50c. below company circular for markets other than this, no such reduction has been announced here, with one exception. This exception is one of the companies whose coal comes in here with a freight differential against it and for that reason its tonnage is not of the largest, but does cut considerable figure. The prices of this company were announced as $7.10 for egg, $7.50 stove and nut, and $5.75 pea, effective March 15. Every one has looked for the other companies to meet these prices, but as both of them have been on record for several weeks as not going to make any reduction, it looks as if this market were going to pay a higher price for its coal than the other districts.

From the retail standpoint those dealers who endeavored to create trade by cutting prices have about subsided; at least, they no longer advertise their cut prices. The public simply refused to buy at any price.

The companies continue to make contracts on buckwheat at $3.50, rice $2.50 and barley $1.50.

Company mine prices per gross ton for line shipment and f.o.b. Port Richmond for Tide are as follows:

| | Line. | Tide. |
|---|---|---|
| Broken | $7.75 | $10.45 |
| Egg | 7.75 | 10.45 |
| Stove | 8.05 | 10.70 |
| Nut | 8.05 | 10.70 |
| Pea | 6.40 | 8.80 |
| Buckwheat | 3.50 | 6.00 |
| Rice | 2.50 | 5.00 |
| Boiler | 2.00 | 4.40 |
| Barley | 1.50 | 3.90 |

**Bituminous**—There is no appreciable change in the demand for fuel; the trade is experiencing one of the dullest periods on record. The one bright spot in the situation here is that the textile trade is in good shape, with some of the big concerns reporting the future outlook good for several months. Even though the iron trade has not improved much it is some satisfaction to know that there are some slight signs of improvement in occasional instances. From the producing end of the trade there seems to be a growing sentiment that a decided improvement can be expected by July 1, as so many concerns having cut deeply into their reserves must replenish by that time. Even this will not save the situation next fall should there be any sign of real active resumption.

In the contract market we have recently noted a tendency of some producers to cut 25c. from their contract prices of $4 to $3.75 for ordinary grades of coal, yet even this has not influenced much business. We have heard of some public utility plants taking on a little tonnage $3.65@$3.75 for good steam coals after having held out for $3.50 for some months.

### NEW YORK

*Additional Price Reductions — No Improvement in Demand — Independents Find Movement Difficult — Bituminous Demand Slow—Contract-Making Tardy.*

**Anthracite**—Demand shows no appreciable improvement. Consumers have not shown any disposition to place their orders, notwithstanding the reductions ranging from 65c. to 75c. made in the retail prices.

With two exceptions, the Lehigh Coal & Navigation and the Philadelphia & Reading companies, all of the large producers have announced mine reductions of 50c. in the prices of domestic sizes.

Line trade is slow. Retailers are not buying up to expectations. Many of the local houses have sent their sales forces out among the trade for the express purpose of impressing upon them the urgency of the situation if they want to avoid trouble in the fall and winter.

There is an abundance of independent product, some of which has been offered at slightly less than the new company price-lists.

Steam demand has not improved and there is much storing going on. Some shippers of independent coals are quoting low figures, but the average range for buckwheat No. 1 was $2.50@$3.25; rice $2@$2.50, and barley from 90c. up. One small operator quoted a price of $1.40 for barley on contract.

Retail dealers in Hoboken and Jersey City have announced a cut of 50c. effective until May 1, when the prices will increase 10c. per ton a month for five months.

Current quotations for company coals per gross ton at mine and f.o.b. Tidewater, at the lower ports, are as follows:

| | Mine. | Tidewater. |
|---|---|---|
| Broken | $7.10@$7.75 | $9.71@$10.36 |
| Egg | 7.10@ 7.75 | 9.71@ 10.36 |
| Stove | 7.35@ 8.10 | 9.96@ 10.71 |
| Chestnut | 7.40@ 8.10 | 10.01@ 10.71 |
| Pea | 5.65@ 6.40 | 8.12@ 8.87 |
| Buckwheat No. 1 | 3.50@ 4.25 | 5.97@ 6.72 |
| Rice | 2.50@ 3.50 | 4.97@ 5.97 |
| Barley | 1.50@ 2.25 | 3.97@ 4.72 |

Quotations for domestic coals at the upper ports are generally 5c. higher on account of the difference in freight rates.

**Bituminous**—The short-lived strike of the tug-boat men—coastwise and local harbor—had no apparent effect on the situation.

Demand is slow but there is a better atmosphere. Inquiry is slightly improved, although the improvement in buying is not noticeable. Line demand is said to be stronger and prices a trifle stiffer than on the Tidewater basis.

With the stocks of most manufacturers pretty well cleaned up and their contracts expiring on April 1 some shippers predict a jump in demand, especially in spot coals. There is little demand for bunker coals. Many vessels being tied up in the harbor.

There is no increased activity in the closing of contracts. As heretofore producers held close to their figures ranging $3.75@$4.25 according to grade, while buyers looked for lower prices.

Quotations f.o.b. piers ranged about as follows: Pool 1, $6.25@$6.50; Pool 9, $5.90@$6; Pool 10, $5.75@$5.85; Pool 71, $6@$6.15; Pool 11, $5.30@$5.50; Pool 18, $4.50@$5 and Pool 34, $4.50 @$5. The general trend of mine quotations shows little change and are reported in the Weekly Review.

### BALTIMORE

*Soft Coal Slump Continues—Some Contract Offers Are Cut—Hard Coal Men Discuss Uncertain Situation.*

**Bituminous**—The slump in the soft coal business is holding with a vengeance. Consumers are not only holding off on contract closing, but seem little interested, judging from the line of inquiries on possible future business. In addition they are buying very slowly in the spot market.

Very low spot prices do not seem to attract business and the purchaser is going ahead apparently with the idea that the low era will continue for some time. While some producers are standing by the quotations on contract for better steam coals of $4@$4.25 f.o.b. mines, and for best gas coals at $3.75@ $4, others are now under-cutting. This was shown in the bids on a Government contract for about 30,000 tons, opened in Washington last week, on which nearly forty bidders submitted offers, the majority ranging $3.60@$4 a gross ton, the highest bidder being $4.80.

Daily mine loadings are about one-third of normal, and the reserve at Tide is more than ample in the face of continued light export movement. Total loading on foreign account for the first nineteen days of March was 68,254 tons cargo and 6,003 tons bunker.

**Anthracite**—A meeting of the Baltimore Coal Exchange was held March 21 and the spring outlook discussed. Much information is still lacking to set the trade straight on the basis of operations after April 1. The fact that one large producer had cut the price of buckwheat and barley 75c. and rice 50c. was not of great interest, as little of

those sizes are absorbed here. The uncertainty at the time of the meeting as to company and independent prices for spring prevented any definite announcment of retail price changes, if any.

It was strongly felt that the company price might come up to about the rate of selling now in force by M. A. Hanna & Co., and this would be about the standard for wholesale selling this spring. Such a basis might allow a retail reduction of around 50c. Yard stocks are not heavy, probably between 10,000 and 15,000 tons, and most dealers will be fairly clear to begin spring business on a new basis.

### HAMPTON ROADS

*Prices Firm — Business Is Quiet — No Contracting.*

There is practically no business except routine being conducted. The price of coal in Pools 1 and 2 remains at $6, while other pools are priced $5@ $5.25, with no demand for these grades, and very few inquiries.

Dealers here are of the opinion that the number of new contracts will be much smaller than in the past. Many of them have already received advices from consumers that they will not renew contracts April 1 but will depend upon the spot market for their needs.

The situation at the three coal exchanges as of March 24 was as follows:

| | |
|---|---|
| C. & O. piers, Newport News— | |
| Cars on hand | 2,817 |
| Tons on hand | 140,350 |
| Cars dumped March 1 to 23, inc. | 3,342 |
| Tons dumped same period | 175,003 |
| Tonnage waiting | 955 |
| Virginian Ry. piers, Sewalls Point— | |
| Cars on hand | 1,175 |
| Tons on hand | 58,750 |
| Cars dumped March 1 to 23, inc. | 3,677 |
| Tons dumped same period | 183,866 |
| Tonnage waiting | 5,400 |
| Cars on hand outside of pool | 206 |
| N. & W. piers, Lamberts Point— | |
| Cars on hand | 2,875 |
| Tons on hand | 131,901 |
| Cars dumped March 1 to 23, inc. | 4 225 |
| Tons dumped same period | 240,123 |
| Tonnage waiting | 5,135 |

### BUFFALO

*Only Anthracite Moves Freely—Bituminous Shippers See No Immediate Improvement—Late Start Seen for Lakes.*

**Bituminous**—Demand is still too light to make good profits possible. The consumer is not coming into the market at all freely, often for the reason that he is still getting cheap demurrage coal. Jobbers complain that their old customers often drop off for a matter of 5c. a ton, after they had taken great pains to carry them along when coal was scarce.

Mines are running at the same low rate. Often they are active merely to give the men something to do. This still produces more coal than is needed and keeps the market weak. Factories do not show any disposition to run at a faster rate and there are plenty of predictions that the worst is not over.

Bituminous prices are as weak as ever, with top quotations at $3.50 for Youghiogheny gas lump, $3 for Pittsburgh and No. 8 steam lump, $2.60 for all mine run and $2 for slack.

**Anthracite**—The supply exceeds the demand. The consumer is not buying liberally. March has turned out to be quite mild so that there will not be any refilling of cellar bins after the regular supply is gone, as was the case last winter. The shippers feel the changed conditions and are loading Lake steamers as fast as they can.

It looks now as if the first coal fleet to the Upper Lakes would be larger than for several seasons past, more shippers being active in that branch of the trade than usual at the outset. Upper Lake docks are bare of anthracite, so it will be easy to take care of the surplus. Already there is a matter of 150,000 tons afloat and it may be a month before the season opens.

**Coke**—The situation does not improve. Iron ore movement, which is a good key to the condition of the iron trade and coke demand, may not begin by Lake for a month, for there is no real need of a further supply. Vessel owners report entire stagnation, neither sales nor charters having been made.

## Northwest

### MINNEAPOLIS

*Trade Drags—Buyers Indifferent—Contract Market Is Quiet—Lakes Movement to Be Delayed.*

The coal trade of the Northwest is dragging along from week to week with little change to be noted. This is not materially different from the normal situation about this time, except that there is much less interest now in the future market. Buyers are not interested, and could not be aroused to an interest on any suggestion that has been possible for a long time. For a time, buyers were fearful of a return of the scarcity conditions of last winter, but as time rolled on, and there was no sign of any reaction toward a tight condition they seem to be convinced that things are coming their way and that the buyers' market will continue indefinitely.

This view is not held by many coal concerns. Instead, some of them predict as serious a situation as existed a year ago, with less chance of escaping it. But the scare idea does not appeal to many in the buying end as at all likely. They are holding off from buying and so far none of the arguments have had any effect.

Contracting for the new coal year is frequently well under way by this time, but so far there has been no business closed. Buyers are unwilling to stock up or to obligate themselves for the future, probably because they feel sure of lower prices.

The Great Lakes may open for navigation very soon — possibly early in April. But there does not seem to be any available coal tonnage, because no one is ready to place orders to justify early shipping.

There are many in the coal trade who see no merit in the claim that the Northwest must rush with all possible speed to avert a famine, this winter or any winter. Others fear that the railroad situation will prove to be inadequate whenever the tonnage reaches anywhere near normal proportions.

### MILWAUKEE

*Spring Weather Breeds Stagnation—Dealers Insist That Prices Have Reached Bottom.*

There is very little doing in coal at Milwaukee now-a-days. The trade is absolutely stagnant. Warm, spring weather holds down the demand for domestic, and the industries require only a small share of their former needs. In consequence, stock piles at the dock yards show little signs of reduction.

Prices are held unchanged. There is still some talk of a slight reduction of soft coal and coke in April, but dealers cannot see it that way, and insist that coal prices have reached bottom for the present, at least. Coal stocks are increasing rather than diminishing, despite the recent cuts in price.

## Inland West

### CHICAGO

*Anthracite Cut Encourages Stocking—Bituminous Market Listless—Shortage Warnings Unheeded.*

Bituminous producers and shippers are encountering very poor business in Chicago. Practically every dealer in the city has some customers who require anthracite. There are a number of dealers who handle nothing but hard coal and there are some who handle anthracite and bituminous but there are practically no dealers who sell soft coal exclusively. Anthracite prices effective April 1 will be reduced approximately 50c. per ton. The wise dealer who has had experience with the anthracite operators, knows that they stick to their price schedule and consequently he is taking advantage of the situation to buy his coal just as cheaply as he can. This coal will have to be stocked until the middle of the summer or perhaps fall. Consequently, the salesman who is offering soft coal to the trade is no longer listened to, as all retail efforts are now centered on the problem of stocking anthracite and financing the investment.

The steam market lags and it is said by sales agents who are very closely in touch with the steam situation that less interest has been shown by buyers of steam coal this week than at any other time during the year.

Although a number of operators and selling agencies have circularized the trade to the effect that there will be a coal shortage some time this season, the public looks askance upon these predictions.

### CLEVELAND

*Signs of Improving — Slack Demand Slightly Better — Contract Interest Is Now Active.*

**Bituminous**—Improvement is discernible in the coal trade, although the markets are far from being active. The

most encouraging development is the indication that a better demand for slack will appear before long. In addition, as the beginning of the new coal year draws nearer, an increase in contract inquiries and negotiations has come from railroads, public utilities and manufacturing plants. Stock piles have begun to disappear, while evidences that the worst of the depression is over are coming to light. This is bringing industrial plants to the point of thinking of covering their fuel needs for the year.

For some time the output of coal has been in prepared sizes and considerable slack was accumulated. Many buyers have taken advantage of the opportunity and have obtained their slack requirements, and in some cases there has been buying in anticipation of the future. One operator in Cleveland forecasts that slack quotations will overtake those of mine run both in contract and spot sales. Within the last few days buyers from Pittsburgh have appeared in the Cleveland market for slack. Spot prices are shown in the Weekly Review.

Ohio coal operators have submitted bids on contract to the following railroads which have invited proposals: New York Central, Michigan Central, Lehigh Valley, Pittsburgh & Lake Erie and the Ann Arbor. These bids are for coal for the new coal year, although one road asks for bids covering five years. The Baltimore & Ohio has covered its 1921 requirements.

**Pocahontas and Anthracite**—Pocahontas sales are tapering off, with the demand almost wholly confined to small lots. Anthracite prices will be revised downward slightly April 1 as a result of the drop of 50c. at the mines.

**Lakes**—Ships are being offered freely at Lower Lakes docks. According to reports there will not be a great volume of coal carried over at the Lake Michigan ports but a considerable amount at the Lake Superior ports. Much coal is now being loaded.

Retail prices delivered in Cleveland follow:

Anthracite—All grades, $14.90.
Pocahontas—Shoveled lump, $11.40; mine run, $10.30.
Domestic Bituminous—West Virginia splint, $10; No. 8 Pittsburgh, $8.45; Cannel lump, $12.15.
Steam Coal—No. 6 and No. 8 slack, $6.60; No. 6 and No. 8 mine run, $7.50; No. 8½-in. lump, $7.75.

### COLUMBUS

*Production at Low Point — Indifferent Contract Market—Prices Are Firm.*

Low prices evidently do not attract customers as it is almost impossible to give tonnage away. Consumers are all playing a waiting game and are not disposed to take any chances for the future. Consequently there is no zip at all to the market and little is expected until after the Lake season starts. Large consumers who are operating are still using their reserve stocks. Buying on the part of public utilities is the best feature of the market. Railroads are not taking any large tonnage and while they are asking for proposals, producers and shippers are loath to bid. It is figured that if a contract were made at a rather low rate now, railroads would not require much coal and when things are better and the railroads are larger consumers, free coal can be disposed of at a higher price.

Contracting from the standpoint of industrial plants is at a standstill. Speculation as to prices for contract fuel is rife. It is believed that mine run will range $2.85@$3.10 although some radical changes may take place. Purchasers are inclined to take their chances in buying on the open market.

Domestic trade is quiet in the extreme. Retailers are doing practically no business and are only placing orders for an occasional car. It is believed, however, that some householders will start stocking earlier than usual in order to take advantage of the very low prices.

Prices are about stationary at former levels, and are shown in the Weekly Review. It is believed with conditions continuing the price of mine run and nut, pea and slack will range about the same. Production is small in all fields, excepting where Lake vessels are being loaded.

### CINCINNATI

*Trading at Standstill—Contracting Is Sluggish—Steam Prices Weaker.*

Trading still remains at a standstill save for what small contract orders are being filled. The slight improvement in the retail business noted last week still continues in a measure.

Though the beginning of the new coal year is almost at hand very few new contracts are reported. Operations at Cincinnati and vicinity plants are but a small percentage of normal. Those plants are now buying in very limited quantities on the spot market.

Steam quotations show some slight decline from the prices of last week. Pocahontas lump is quoted at $5; mine run, $3.50; bituminous nut and slack, $3; lump, $4 and egg coal from $2.75 up. Retail prices remain stationary, and are as follows: Bituminous lump $8.50@$8.75; mine run, $8.25@$8.50; smokeless lump and egg, $10.50; mine run, $9@$9.50; anthracite egg, $15@$16.25; domestic egg coke, $14.50@$16.

### DETROIT

*Receipts Are Lighter—Demand Unimproved—No Contract Activity.*

Apparently there is no improvement in demand either from steam coal users or from the domestic division of the local trade.

Recovery from the business depression apparently is proceeding even more slowly than had been anticipated. While manufacturing plants are resuming operations the consumption of steam coal continues far below the normal volume. Many steam plants are able to provide for their requirements from storage piles.

Incoming shipments are small. This circumstance is regarded as a favorable feature of the present conditions and jobbers observe that it is in sharp contrast with previous periods of depression when the local market was crowded with shipments of speculative coal. This is attributable in part to the loading of a number of Lake freighters at Ohio ports. Some 50 cargoes have been loaded or are scheduled for loading, though the vessels probably will not hasten delivery, owing to the unsatisfactory outlook in the Lakes freight trade.

Smokeless lump and egg is quoted at $6, mine run, $3.75 and slack $2.25. Ohio lump is $3.50@$3.75, mine run $2.60 and slack $2.25. West Virginia and Kentucky lump is $3.75@$4, mine run $2.75 and slack $2.25.

Very little interest has so far developed in the making of contracts. A number of consumers of steam coal are reported to have expressed a belief they will be able to buy in the open market at lower prices than under contracts.

### ST. LOUIS

*Production Curtailment Continues — Good Demand for Screenings — Domestic Market Listless.*

There is practically no domestic coal moving on account of the weather. The steam situation in the city, as far as the industrial situation is concerned, is the same as it has been for some time past, with the exception that here and there is a little increased activity. The new rolling mill of the Scullin Steel Co., which started up recently, is the most noticeable instance.

A steam shortage has been caused by many mines shutting down on account of inability to move the screened sizes. In the Standard field screenings advanced to $1.85@$2. Screenings in the Mt. Olive field have been selling at about $2.40@$2.50, but few are available. The Carterville situation continues to show a decrease in tonnage locally. A few dealers contemplate carrying a little in storage, but this has not begun to move as yet.

Something like 300 cars of anthracite have been ordered for shipment during the month of April and May for the larger St. Louis dealers. This will range about 60 per cent egg, 15 per cent grate, and 25 per cent chestnut. No smokeless orders have been placed as yet, and nothing to indicate anything will move in from Arkansas.

Effective the first of April the new retail prices are expected to be: Carterville, $7.25; Mt. Olive, $6; Standard, $5.50.

## South

### BIRMINGHAM

*Market Conditions Fail to Improve—Steam Quotations Show Little Change —Domestic Prices for April Announced.*

With the demand for coal at the lowest ebb in many years the market is devoid of interest. Sales are confined to spot orders for a few cars and

there is no interest on the part of consumers in regard to contracts for steam fuel, the only requests for bids received so far being from the L. & N. and the Frisco, whose fuel agreements expire April 1. The Frisco is now taking only about 50 per cent of the minimum tonnage called for by its current contracts and the Southern has cut down temporarily to 60 per cent, having about 60 days supply ahead.

Producers are not slashing prices, feeling that they are now on a fair and reasonable cost basis and that such action will not stimulate trade, the dullness being due to general inert business conditions. Quotations are shown in the Weekly Review.

There is a slightly better tone to the domestic trade and some contracts have been made on the basis of April 1 prices. The retail trade is being urged to take early action in providing for the coming year, as a continuation of idleness at the steam producing operations will cut off a large portion of the domestic supply normally available, and will necessarily cause a shortage in domestic coal, as mines supplying the domestic market exclusively furnish probably not over 50 per cent of the coal required. Quotations for April 1 for Big Seam lump are $3.25; Carbon Hill $3.75; Black Creek and Cahaba $4.50@$5; Montevallo $6.50.

Mines as a whole are probably averaging two days per week and lack of more steady employment is beginning to work a great hardship on labor, which has begun to drift to other channels seeking improved conditions.

### LOUISVILLE

*Much Interest Shown in Contract Prices —Western Kentucky Holding Wage Conferences—Steam Demands Stronger.*

Contract quotations are around 33 per cent higher than present spot figures but are not resulting in business being placed. The consumer does not feel like taking chances on lower markets later, while the operator figures that spot prices are too close to rock-bottom for a contract basis.

An eastern Kentucky operator states that mine run, which is selling at $2.50 is being quoted $3@$3.50 for contract. Another states that he had figured some contract quotations at $3.12. On screenings which are quoted around $1.95@$2 spot, some operators are asking $2.90@$3.10 on contracts.

Conferences have been on for several days between the Coal Operators' Association, operating in two western Kentucky counties, and union officials, relative to a wage scale which expires April 1. So far nothing definite has been decided upon. It is believed that an agreement will be reached, but even if a strike develops it will only affect about one-third of the organized production of that district.

Railroads are the principal buyers asking for contract quotations. There has been but little Lakes inquiry as yet, buyers apparently planning to wait thirty or sixty days. Public utilities are playing the spot market.

Demand for lump coal is very dull, but screenings are scarcer as a result, and mine run is moving better. Prices are fairly steady. Principal quotations are shown in the Weekly Review.

## West

### DENVER

*April Schedules Being Forced—Keen Retail Competition—Production Is Hard Hit.*

Buying is so inactive that many operators are already quoting the April schedule of $5.65 for bituminous. Some grades are even being offered at $5.50. Retailers are buying cautiously, with much stress on quality, as competition is unusually keen in their business and cut-prices are becoming more common each day.

The action of one bituminous operator in lowering his mine price has a tendency to bring down April quotations although other producers are expected to maintain their stand on the $5.65 schedule. The output for the week ended March 12 amounted to 130,000 tons of a possible 266,700 tons. "No markets" were responsible for 49.5 per cent of the loss.

Bituminous lump is quoted $12.50 retail. Lignite is $9.25 although undercutting on an inferior grade is bringing some sales around $6.95@$7.25. This has resulted in a cut on second-grade lignite from $8.15 to $7.25. A new size, lignite nut, is being offered at $6.40 retail in Denver.

# News From the Coal Fields

## Northern Appalachian

### PITTSBURGH

*Production Stationary at About 40 Per Cent—Speculation on Wages—No Contracting.*

Production continues quite steadily at a rate of about 40 per cent. While the rate of consumption continues to decrease somewhat, with lower operations in the steel industry and very little domestic use, this decrease is largely if not wholly offset by exhaustion of stocks. The public service companies are taking coal much the same as at any time.

Prospects are very poor for any considerable movement of Lakes coal in the next few weeks, and it may be toward the close of June before shipments are normal. Even if there were demand in the Northwest there would be difficulty in securing vessels, as there will be little ore movement in the fore part of the season.

Nothing tangible is developing in the matter of wages, though there has been an undercurrent of thought for a couple of months that in one way or another wages will decline before April 1, 1922, the date to which the existing scale was signed. In some quarters it is thought that the prospective general reduction in the Connellsville region will furnish a basis for a readjustment of the union scale.

There is as little interest as formerly in contracts, and with the expiration of old agreements there will probably be various temporary adjustments, by way of agreeing upon prices weekly or monthly.

Spot prices continue to show a wide range, with many sales made at what appears clearly to be far below the cost of production. There is no market at all on byproduct.

### CONNELLSVILLE

*Absolute Stagnation — No Interest in Contracts—Few Wage Reductions.*

The coke market reflects the condition in pig iron, that of absolute stagnation, except that there is a moderate amount of business done from week to week in foundry coke. Indeed, furnace coke is even more stagnant than pig iron, for the reason that the sales of basic iron being made, few in number and small in tonnage, are chiefly from stock in hand, so that to an extent the iron being sold does not have to be made and thus does not need coke.

There is only a very occasional sale of spot furnace coke, while there is a limited movement in coke for heating purposes, etc. In spot foundry coke there seems to be a fair movement, this being largely due to the fact that many consumers are without contracts and must get in the open market what little coke they are consuming.

There have been a few additional wage reductions by small interests. In general the independent operators are disposed to await action by the H. C. Frick Coke Co., which evidently will only reduce wages when the Steel Corporation makes a general reduction at its holdings.

There is absolutely no interest in contract coke. We quote: Spot furnace, $4@$4.50; spot foundry, $5.25@$6; contract furnace, nominal, $4.75@$5; contract foundry, nominal, $6. The *Courier* reports production in the week ended March 19 at 42,780 tons by the furnace ovens, and 25,720 tons by the merchant ovens, making a total of 68,500 tons, a decrease of 40,300 tons.

### UNIONTOWN

*Spot Market Inactive—Indifferent Buying Presages Another Shortage.*

Selling agencies continue to "keep office" and operators have production at

its low point. Sales made in steam are entirely spot and in odd lots taking various figures below $2. These sales are not sufficiently numerous to establish a market and therefore quotations are not significant. Byproduct coal reflects the same situation. Quotations for that grade however, range $2.25 @$2.75.

Information received by a local jobber direct from a railroad purchasing agent may in a sense provide an answer for the unwillingness of the railroads to enter into contracts for the new coal year. When the jobber sought to convince the purchasing agent that he should cover the needs of his road for the coming year he received the nonchalant reply that the roads could have all the tonnage they needed by canceling the freight against it.

Quite a few operators would not be surprised to see a return of last year's shortage when business once more is restored to normal. A strong demand would bring a recurrence of last summer's situation—plenty of coal at the mines but the transportation lines unable to get it to market. Some operators are seeking to convince large consumers that they would do well to cover some future needs now when they can secure prompt delivery, but apparently they are not seeing the force of that argument.

### EASTERN OHIO

*Lakes Program Lagging—Better Tone to Quotations—Contract Interest Becomes Active.*

The status of the whole situation continues to be reflected in the volume of production, which amounted to 277,000 tons for the week ended March 19. This is 5,000 tons less than the preceding week, and is 42.3 per cent of the potential capacity. Production for railroad fuel account was sharply reduced although carriers continue to absorb in excess of 50 per cent of all coal mined. Association mines reporting worked 38 per cent of possible work-time and production ran 45 per cent of potential capacity.

Four steamers are taking cargoes at Huron and five at Cleveland. The aggregate tonnage already dumped and lined up for boats at lower ports will not exceed 500,000 tons. Many feel that in view of the late opening, because of the inactivity in the Lake trade, the volume this season will fall far short of that for any previous year.

With many mines closed down and contracts expiring, there is some stiffening in spot prices. Slack ranges $1.85 @$2, mine run $2.20@$2.35, ¾-in. lump $2.75@$2.90, 1¼-in. lump $3@$3.25 and domestic lump $3.25@$3.75. The following prices are being used as a basis for new contracts: Slack $2.70@$3, mine run $2.75@$3.25, and lump $3.25 up.

Operators have received requests from the Ann Arbor R.R. for contract bids on 200,000 tons per year for five years. The City of Cleveland Municipal Light Co. and the Cleveland Ry. Co. have also requested bids on 50,000 tons each. Requests for bids have been received from Big Four, New York Central, Michigan Central and Lehigh Valley Railroads, covering requirements for the ensuing year. Some new life is also being manifested in contract inquiries from manufacturing plants.

### CENTRAL PENNSYLVANIA

*Contracting Is Deferred—Production at Bottom—Spot Market Inactive*

There is absolutely no change in the mining situation and indications are that the March output will fall below that of February, when the low record since the outbreak of the war was reached.

What sales are being made are for spot coal and contracts are not being closed. It is apparent that all contracts will be deferred and consumers will buy just as they need fuel on the spot market. Approximately one-third of the mines in the entire district are being operated. Pools 1, 9 and 71 are the only coals being sold in any quantity and they are reported slow.

### UPPER POTOMAC

*No Spot Demand—Contracting Is Slow —Production at Low Level.*

There were only about four companies in the entire region able to keep their mines going during the week ended March 19. Such mines operated about four days, so that only a very small proportion of the entire output was being produced. Such a condition grew out of the fact that mines had no spot market for their coal nor were the smaller companies making any effort to secure contracts for the new coal year, owing to the fact that contracts last year had been canceled at such a wholesale rate. About the only contracts closed were by the larger companies with old customers.

### FAIRMONT AND PANHANDLE

*Slightly Heavier Production—Contract Market Dull, but Few Closings—Lakes Trade Inactive.*

#### FAIRMONT

Although loadings were somewhat heavier in northern West Virginia during the early part of the week ended March 19 yet there was no permanent improvement in market conditions. The spurt was only temporary and the total number of mines idle throughout the week was not far short of 260. A small volume of coal was being moved to Canadian markets.

No activity in new contracts was noted although price inquiries were numerous. Tidewater shipments increased slightly. Railroad fuel loadings were far under normal and Western business was practically negligible.

#### NORTHERN PANHANDLE

The output was not in excess of one-third of normal during the week. Very little coal except contract fuel was being produced as there was a total lack of spot demand. Some contracts were made for the new coal year at prices around $3.50. This covered delivery to Northern markets only, the Lakes situation being as yet unproductive of any seasonal agreements.

## Middle West

### MIDWEST REVIEW

*Production Still Dropping — Continuance of Sluggish Market May Bring Another Rush Period.*

The domestic trade is not buying on account of the mild weather, nor are the factories buying as they do not need anywhere near the normal amount of coal they usually require for heating purposes let alone for running their factories.

If a careful census were possible it is our belief it would be discovered that more factories are closed today than were closed early in January. The only improvement noted has been along the line of industries connected with building materials. These are in a fairly active state, although they are not operating up to normal capacity.

Dealers who have a little money which they are able to invest in coal are taking advantage of the situation to buy their anthracite and they will continue to concentrate on this during the months of April and May. We understand that the domestic trade has placed heavy orders with the Franklin County operators, orders placed strictly on the basis of prices current at the time of shipment, and calling for certain specific shipments every month.

A great many coal men are very sincerely convinced of the fact that there will be a serious car shortage before Sept. 1. Production is dropping so swiftly and so consistently that once the demand becomes anywhere near normal, it will be found that the mines of the country will not be able to supply the requirements even if they will be able to operate full time. Add to this the fact that the railroads are all poor and have been unable to buy new equipment or repair old and worn out cars. Last year it was conclusively shown that the railroads were unable to handle the coal required by the public, and last year the railroads from an operating standpoint, were in far better shape than they are today. Another angle that will probably result in bringing about a car shortage is the fact that a great number of our States are starting extensive operations toward building state highways. In the construction of these roads huge quantities of cement, sand, gravel, etc., will be used and practically all of this material will have to be transported in coal cars.

Any one of these factors is able to bring about a serious car shortage, but if all should come at once it would result pretty nearly in a calamity. Practically all coal men are urging the public to stock as much coal as possible, because they honestly feel that we are headed for trouble and they are taking steps to see that their own particular customers are protected. The last thing

in the world a far sighted coal operator wishes is a repetition of last summer's conditions.

### SOUTHERN ILLINOIS

*Screenings in Good Demand—Supply Curtailed—Much Unbilled Domestic—Production Goes Lower.*

Domestic sizes continued to decline in the Carterville district during the week ended March 19. This resulted in a further stiffening of the steam market. At this writing every mine that is running has domestic sizes unbilled and is behind on orders for screenings and smaller sizes. Mine run is not in demand.

Mine idleness is growing, some operations running only one day a week. A few of the independents are selling below production costs, figuring they must do this to keep their organizations together, but it is a question how long this can continue. Association mines are adhering to the spring price schedule. Conditions in the Duquoin field are considerably worse as regards working time, prices and general outlook. Mt. Olive domestic tonnage has fallen off heavily and it looks like a one-day-a-week schedule from now on. Screenings are selling high at $2.40 with very little available. Domestic sizes are firm at $3 and railroad tonnage is down to the minimum.

A continued depression has a firm hold on the Standard field. Many additional mines are shutting down. Domestic sizes and mine run are hard to move. This has created a screenings shortage which is holding the price firm, $1.65@$1.75. Mines are down to one day's operations and then it is hard to market the output.

With spring weather prevailing there will be no great demand for domestic sizes and every promise is held out for a rising steam market because of the inability to move lump and the fact that some of the largest mines in the Standard field are shutting down.

### WESTERN KENTUCKY

*Steam Demand Improves—Few New Contracts Are Placed—Controversies Over New Wage Agreement.*

Scarcity of screenings continues as a result of lowered production of domestic sizes. This has raised screenings prices and firmed up mine run. Many inquiries are being received for contract quotations but operators appear to be uncertain as to what constitutes an acceptable figure for the new year's business. May delivery is quoted at 25c. over the spot market and annual contracts about one-third higher. Some contract quotations have been made on mine run $2.75@$2.90 and screenings $2.50@$2.75. But few new agreements have been closed as yet.

Wage agreements at a small group of mines in the Coal Operators' Association expire in a few days. There have been some conferences as to a readjustment of wages. In Union County a walkout occurred when the men were told to clean up the mines pending an outcome of the wage agreement. There is but little demand for coal and producers are not worrying much about running. However, contracts with the Western Kentucky Coal Operators' Association run to April 1922 and conditions are quiet in that section.

## Middle Appalachian

### HIGH-VOLATILE FIELDS

*Low Production Continues—New Contract Market Inactive—Spot Prices too Low for Acceptance.*

#### KANAWHA

There was little or no spot market for coal mined in the period ended March 19 and production if anything was on a lower scale, with more mines shut down. Slack and mine run were on about an equal price footing, the nominal figure hovering around the $2-mark which was regarded as a distress price not generally accepted by producers. Buyers still refrained from entering the contract market and but few new agreements were closed.

#### LOGAN AND THACKER

Storage piles were growing at Logan mines and automobile plants were taking better contract shipments. This accounts for a slight increase in production during the week although buyers showed absolutely no interest in the spot market. Practically no new contract business was closed.

Thacker production was maintained at about 30 per cent of normal. There was little interest in either the spot or contract market other than inquiries for quotations covering the new year's business. Practically all the coal mined was for contract delivery as producers were not in favor of shipping on the present spot market with the low prices which are prevailing.

#### VIRGINIA

Production climbed from 40 per cent to 51 per cent of potential capacity during the week, enabling the mines to produce 91,000 tons. The week was featured by the usual dullness in the spot market but on the other hand, contract customers increased their requirements in a way which encouraged producers.

### LOW-VOLATILE FIELDS

*Contracting Is Sluggish—Tidewater Conditions Improving—Production Curtailment Continues.*

#### NEW RIVER AND THE GULF

Winding Gulf production remained at about 30 per cent of normal during the week ended March 19. It was next to impossible to sell coal on a spot basis except at unprofitable figures. Less coal was going to Tidewater as market conditions were such that only contracted coal was being sent forward. There was no improvement in the contract market for the new coal year.

Commenting on the labor situation E. E. White, president of the Winding Gulf Operators Association, said in his annual address to the association at Philadelphia:

"During the year 1920 we have advanced wages to our employees twice. April 1 we increased our miners 33⅓ per cent, daymen 30 per cent, and yardage and dead work 20 per cent over the November, 1917, Washington agreement, and in September we gave a further increase of 10 per cent to the miners and $1.50 per day to the daymen, making in all an advance of 43⅓ per cent for miners, 62 per cent for daymen, and 20 per cent for yardage and dead work over the November, 1917, Washington wage agreement. It might be of interest to state that since the organization of our association we have to date increased our men as follows: Miners, 124 per cent; daymen, 173 per cent; yardage and dead work, 40 per cent."

Southern markets presented a better outlet for New River coal than for some time past, as manufacturing plants in Virginia and the Carolinas were increasing their operating time. Western markets were almost inactive with but little interest in new contracts from any source.

#### POCAHONTAS AND TUG RIVER

Pocahontas mines worked about two days during the week, the output being estimated at 190,000 tons or 35 per cent of potential capacity. Virtually no coal was being sold in the open market, regardless of numerous price concessions made. The large accumulation at Tidewater was being materially reduced and before long it was thought it might be possible to resume shipments to the piers. Old contracts furnished the only outlet for production. General market conditions stood in the way of much new contract activity and negotiations have not yet passed the preliminary stage.

The output in the Tug River region hovered between 50,000 and 60,000 tons. Spot sales were almost negligible and consequently prices were about as soft as ever, mine run not far from $3.50 and prepared sizes $4. Mines on an average were running about two days a week. Little coal aside from that intended for contract customers was moving. New business in the shape of contracts was as yet an unknown quantity in the region.

## West

### UTAH

*Buying Is Sluggish—No Early Industrial Demand.*

The coal situation remains unchanged. Stocks are getting very low, but the weather is so warm that dealers are reluctant to order supplies, especially as every one is expecting a drop in prices before long. There are some indications of a renewal of industrial activity, but conditions are still very quiet, and no early increase in demand for coal is expected.

# MINE And COMPANY NEWS

## ALABAMA

An explosion of unknown origin completely wrecked two supply magazines of the **Woodward Iron Co.**, located at its Dolomite coal mines and also badly damaged a mine supply house near by, causing a loss of several thousand dollars.

**The County Coal Co.**, with an authorized paid in capital stock of $100,000, has been incorporated, with the intention of developing coal land in the Cahaba field, near Grant's Mill, Jefferson County. The new venture is backed by the Sossong interests, formerly operating in the Pennsylvania coal field. The officers of the company are William F. Sossong, president; William S. Pritchard, vice-president; W. J. Sossong, secretary, and Leo. F. Sossong, treasurer, and the home office is to be located at Carnegie, Pa. Henry F. Neny, a local engineer, is in charge of the company's field interests. The new developments will be near a spur now being built by the Central of Georgia to a proposed new opening of the Alabama Fuel & Iron Co.

## ALASKA

**Bert W. Dyer**, Department of Interior Mine Inspector for Alaska, has been appointed Government representative in connection with the administration of coal-land leases granted by the Secretary of the Interior for the United States in Alaska, subsequent to advices received from Washington to that effect. Mr. Dyer's headquarters are in Fairbanks, where he has been stationed since late last fall.

## COLORADO

**The Oakdale Coal Co.**, with mines in southern Colorado, is using its entire working force from two to three days a week getting out what orders come along, according to Harry F. Nash, general sales agent. Some improvements are contemplated, but they will be made later. March is one of the worst months for Colorado operators in twenty-five years, according to Mr. Nash.

**The Colorado Fuel & Iron Co.** reports for 1920 a surplus of $1,286,806, after depreciation and taxes, as compared with a deficit of $577,645 in 1919. Gross business transacted in 1920 was $51,612,813, as against $34,405,217 in 1919. Net operating income was $5,466,492, as against $2,299,-002. Interest, depreciation and Federal taxes aggregated $4,692,437, leaving a balance of $1,286,806, which, after deduction of $160,000 for preferred dividends, was equivalent to $3.29 a share on the $34,235,-500 common capital stock outstanding. The surplus after common and preferred dividends for last year was $99,812; in 1919 the deficit, after dividend payments, was $1,764,639.

## ILLINOIS

The Middlefork mine of the **United States Fuel Co.**, located at Benton, where a mammoth washer is in operation, is preparing to put in a plant for reclaiming the fine coal which is washed away. The plant, which will cost around $25,000, will completely and thoroughly separate the coal from the culm. This mine is only running three days per week at present, and the new installation will probably be made during the slack running season. The management wil also take advantage of the idle days to make other improvements and additions.

**The Franklin County Mining Co.**, at Benton is preparing to install new equipment to properly care for the growing demand for Franklin County coal. Among the contemplated improvements is a rescreening plant, which will prepare several sizes of coal. This plant will probably be in operation in a few months. This company is also preparing to erect a modern wash house for its men. The Franklin County company also plans to take advantage of the present dull period to make other improvements.

**The McCraney Coal Co.**, has reopened its mine, three miles east of Coal Valley, after being shut down for a few weeks. Only half of the former force of men has been put to work.

The general offices of the **Union Fuel Co.** were moved on April 1 from the Lytton Building to the new Union Fuel Building, West Madison St., Chicago, shown herewith. A. E. Lee, formerly general freight agent of the C. & A. RR., and vice-president of the Reliable Coal & Mining Co., has been appointed general sales manager. George W. Hatch, heretofore sales manager at Springfield has been given the title of general sales manager at Springfield.

Work of laying more than a mile of additional track will be started by the Chicago & Alton as a part of the plan of the road to make Auburn an interchange coal center. The extension probably will be laid within a month. The improvements include the connection of the Chicago & Alton tracks with those of the Chicago & Illinois Midland. Through the recent activities of the Chicago & Alton officials toward increasing the coal business of the company this line is taking over practically all of the shipments taken by the Illinois Central up to two weeks ago. The change in the policy of the mining interests on the Chicago & Illinois Midland has increased the Chicago & Alton business at Auburn more than 100 per cent in the last two weeks and has necessitated the extension of tracks to relieve the congested condition at that point. A new track is also to be constructed to the Panther Creek mine at Auburn.

## INDIANA

The Big Four Railroad is surveying a route that will tap the big coal fields in Gibson County, east of Petersburg. The line is to extend from Petersburg through Oatsville, Pike County, thence to the coal fields of Francisco and on to Buckskin, near the Warrick County line. The route will also pass through a region of oil wells and when built will be forty miles in length.

## KENTUCKY

**The Yellow Creek Coal Co.** and the **Mingo Coal and Coke Co.**, both principally owned by Major E. S. Helburn and Joe F. Bosworth, will have a three-story house built for offices and apartments in Middlesboro, at a cost of about $40,000.

**The Whitesburg Coal Co.**, Whitco, J. Henry Hall, manager, has closed a deal for the purchase of the new mining plant of the Klenecoal Co. near Elvah, on the main line of the L. & N. in the southern end of Letcher County.

**Castleman Brothers, Inc.**, have filed amended articles changing the name of the organization to the **Bell Harlan Coal Co.**, which will have its office at Louisville. S. T., J. B. and William P. Castleman are the signers of the amendment.

**The Praise-Elkhorn Coal Co.**, Pikeville, has filed amended articles increasing its capital stock from $30,000 to $60,000.

On motion of attorneys for the plaintiffs a $398,000 damage suit filed in the U. S. District Court at Louisville, by the Steel Tube Co., of America; and Milwaukee Coal & Gas Co., both of Milwaukee, against the **Harlan Coal Co.**, Louisville, was withdrawn, before the defendant company could file counter claims for an almost equal amount. The suit involved construction of a contract, both parties holding that the other had breached. In fact the Harlan company was planning court action when the suit was filed against it, but could not secure action in Kentucky, as the Milwaukee companies had no interests there.

## MARYLAND

**The Consolidation Coal Co.**, reports for the year ended Dec. 31, 1920, earnings from operations of $33,965,280, against $23,-507,556 in 1919, and a surplus after dividends of $7,148,565, compared with $795,567 in the previous year. The coal mined by lessees in 1920 amounted to 1,088,844 net tons, against 714,562 net tons in 1919. Coal mined by the Consolidation Company in 1920 aggregated 8,100,437 net tons, against 7,200,333 net tons in 1919.

## MISSOURI

**The West Virginia Coal Co.** has filed suit against the City of St. Louis for $43,499, for failure to comply with its contract, which called for 15,000 tons of screenings to be shipped last fall at a price of $6.50 per ton. The contract was in effect eleven days when the Water Commissioner refused to approve payments, declaring that the price at that time was $4 a ton, caused by a falling market. The Supply Commissioner contended that he used his best judgment in placing the contract but did not receive the support of the other city officials.

## OHIO

**The Progress Coal Co.**, recently chartered at Columbus with an authorized capital of $100,000, has completed the negotiations for taking over the Imperial mine at Nelsonville from the Ohio Consolidated Coal Co. The mine is a going concern with a capacity of about 8,000 tons monthly. B. A. Weardock of Lima is president and general manager. The product will be sold through the Ohio Consolidated Coal Co.

A bill has been dumped into the hopper of the Ohio Legislature for the controlling of all coal jobbers and distributors under the Ohio Utilities Commission. The bill is fathered by Representative Freeman of Hardin County.

An appeal of the **Sloat-Darragh Coal Co.**, Hamilton, from the decree of United States District Judge John Weld Peck, Cincinnati, awarding the **General Coal Co.**, Huntington, W. Va., judgment for $11,242.34 as the amount due for coal purchased, has been filed in the United States Court of Appeals at Cincinnati.

**The Atlantic Ice & Coal Company**, Knoxville, Tenn., has filed in the United States Court of Appeals at Cincinnati an appeal from the judgment of United States District Judge Edward T. Sanford at Knoxville, awarding $1,000 to Sam Van of Knoxville a former employee for injuries sustained by him on May 30, 1917.

New Incorporators listed with Secretary of State are:

**The Warnock Coal Co.**, Steubenville, $100,-000; S. B. Warnock and C. M. Warnock **The Cleveland Akron Coal & Material Retail Co.**, Cleveland, $20,000,000, offices 1730 St. Clair Ave., Cleveland. **The Thouron Coal Co.**, Cleveland, $50,000; W. H. Marlatt and F. H. Pelton.

**The National Coal Co.**, headquarters, Cleveland, will open a new mine near Lamira, Ohio, on the B. & O., where at the present time a side track is being constructed for the purpose of handling material and supplies into the property. It is understood opening of the mine will be delayed pending completion of the railroad branch because of the bad condition of the roads leading to the mine.

**The Youghiogheny & Ohio Coal Co.**, Leader-News Bldg., Cleveland, is removing its general offices to the twelfth floor of the new Hanna Bldg., 14th St. & Euclid Ave., where its office space will be greatly enlarged to more adequately meet requirements due to expansion during the past year. The M. A. Hanna Co. will take over the space vacated by the Youghiogheny & Ohio Coal Co. enlarging their present offices.

## PENNSYLVANIA

Three hundred mine workers were thrown out of work for an indefinite period beginning March 15 as the result of an order at No. 6 shaft of No. 6 colliery operated by the **Pennsylvania Coal Co.** at Inkerman. The shaft will remain idle for at least three months, although work will be resumed as soon as possible. The company plans to make improvements to the property and will install new machinery and additional concrete supports. When completed, the improvements will permit an increased production.

Dr. John N. Sagerson, a Johnstown physician, was awarded a compromise verdict in the Cambria County courts on March 16, amounting to $5,000 against the **Solomon Coal Co.**, as a result of injuries sustained when a truck of the coal company struck the physician's automobile.

**The Pittsburgh Steel Co.** has purchased 269 acres of coal land in Monongahela Township, Greene County, the price paid being understood to have been $88,983. The company has acquired the land for a town site in connection with developing a large coal acreage.

Mine Inspector Joseph Williams, of the **Tenth Bituminous District** has completed his report for 1920. There are 68 mines in the district of which 67 were in operation. One mine was opened and one abandoned. The district produced 3,212,765 tons of which 171,589 tons were converted into 109,680 tons of coke. Of the 382 coke ovens, 320 were in operation. Men employed in the mines numbered 3,948 and outside 679. Seven men were killed and 45 injured. Of the men employed, 1,942 were Americans, 629 Polish, 534 Slavish, 315 Hungarian, 277 Italian, 162 Austrian, 151 Lithuanian, 139 Russion, 75 German, 48 English, 39 Irish, 28 Scotch, 22 French, 20 Belgian, 9 Swedish, 9 Greek, 5 Welsh, 2 Finnish, 2 Horwat and 1 Canadian.

**The Beachley Coal Co.**, operating in Somerset County, has just closed a deal for the George Muller farm in Somerset township. The consideration was $23,075.

A cave-in occurred recently in the mine of the **Maryland Coal Mining Co.** at St. Michael, Cambria County, and two miners, who had just gone to work were caught. One was crushed to death and the other badly injured.

The mine of the **Clearfield Bituminous Coal Corporation** at Rossiter, Clearfield County, was idle because of a controversy between the union and the operators over the company's requirement that the day men should punch a time-clock provided by the company. The matter was referred to two commissioners but they informed the miners that no decision would be announced until the men return to work. The men returned to work following a vote on the proposition.

**T. P. Burns** has started the installation of an extensive coal plant on Pergum hill, near Nanty-Glo, Cambria County, where he located a rich seam of the "C" vein. A tipple is being erected and a siding built to the mine. It is expected to be one of the best producers in that section.

**The Mapletown Coal Co.**, its plant in Greene County, and 1,003 acres of Sewickley coal has been sold by J. Frank Dawson and Taylor N. Dawson, of Uniontown, to Senator John L. Hatfield and others of Morgantown, W. Va. The consideration was $525.000, the price paid for the plant being $200,000.

At the annual meeting of the board of directors of the **Atlantic Coal & Iron Co.**, Philadelphia, the following officers were elected for the ensuing year: William H. Bilyeu, president, William C. Yerkes, vice-president, Chas. Gesing, Jr., secretary and treasurer, Frank D. Enney, manager.

Some few mines in the Connellsville region are utilizing the dull period to make repairs and mprovements at their plants, retaining at least part of ther organizations. Among plants being repaired are the Marion mine of the **Southern Connellsville Coal & Coke Co.** at Cheat Haven and the Jennings mine of the **Jennings Coal Co.**

## WEST VIRGINIA

**The Beda Coal Co.**, Huntington, has just secured 1,600 acres of byproduct coal on Pidgeon Creek, and has organized a company with a capitalization of $200,000 to develop this coal. The coal, according to an analysis furnished by the company contain 33.82 per cent volatile matter; 58.88 per cent fixed carbon; 7.16 per cent ash; and 1.14 per cent moisture. The sulphur is reported to analyze 0.85 per cent; phosphorus .003 per cent. The coal has a heating value of slightly more than 14,000 B.t.u., with the ash fusing point 2,970 deg. F.

**The Wysong-McCoy Coal & Land Co.**, has been organized at Princeton, with $650,000 capital, for operating in the Glade and Holly districts, West Virginia.

**The Thurmond Coal Co.**, in the Logan field, of which Walter R. Thurmond is president, although operating its mines on a part-time basis, is nevertheless engaged in adding to its storage pile so as to be in a good position whenever demand may arise at a later date.

**The Domestic Coke Corporation**, of Fairmont, manufacturers of coke and byproducts, has shut down its plant owing to the poor demand, no announcement having been made as to when operations may be resumed.

Advantage is being taken by the **Fairmont & Cleveland Coal Co.** of the market lull to build more houses for its miners. The company has broken ground for the eretion of 25 new houses.

In the period of dullness the **Lima Coal Co.** just south of Clay, is making preparation for larger operations by driving four new openings. The company is using some of its best men in this work. The only trouble experienced has been in prevailing upon the power company not to shut off power as there are so many mines on Elk River in idleness that the use of power is at a minimum.

A special train of Chicago wholesale and retail dealers made a tour of the smokeless coal fields of Fayette, Raleigh and Wyoming counties during the second week of March as the guests of the Chesapeake & Ohio Ry. Two days were spent in looking over the New River and Winding Gulf regions. The trip ended with a banquet at White Sulphur Springs. In affording the dealers an opportunity to study the production of smokeless and to judge of its quality, the C. & O. hopes to convince Chicago buyers of the desirability not only of having smokeless coal but of having it shipped over that road.

Directors just elected by the stockholders of the **Diamond Coal Co.** are: Dr. L. S. Brock, Morgantown; Lawrence E. Sands, Pittsburgh, Pa.; Howard W. Showalter and E. M. Showalter. New officers are: Howard W. Showalter, president; Samuel D. Brady, vice-president; Harry E. Engle, treasurer; A. P. Brady. treasurer.

Alexander Ronay has just sold 146 acres of Pittsburgh coal near Shinnston to the **Basin Coal Co.**, who paid for the acreage obtained from Mr. Ronay the sum of $27,000.

**The Turkey Gap Coal & Coke Co.** has announced that the installation of the picking tables and shaker screen on their new Wenonah No. 3 tipple has been completed. Other building and construction work is under way so that actual shipments at full capacity may not be under full swing until about April 1. The new tipple is modern throughout and will afford the company an additional tonnage of about 125,000 tons annually. A contract was let during the first week of March by the company for 25 new houses. Assurances have been received from the Appalachian Power Co. that the new substation for power for the Wenonah operation will be completed by or before the first of April. Three haulage locomotives and 100 mine cars were received by the company early in March.

A deal of considerable magnitude has been consumated under the terms of which **J. A. Bell**, of Carnegie, Pa., acquires title from **David Okey**, of Marietta, Ohio, to 1,000 acres of coal land on the waters of Buffalo Creek in Brooke and Ohio counties. The sum involved in the transfer was $100,000. The coal is in the Pittsburgh vein and is between five and seven feet in thickness. The John H. Jones interests are said to be interested in the deal, the same interests being already extensively interested in operations in the Wheeling District. A railroad will be built into the coal property and will make it possible to ship both over the B. & O. and the Pennsylvania. It is estimated that the road will cost in the neighborhood of $250,000.

**The Basin Coal Co.** which will operate near Shinnston is planning to begin the shipment of coal by June 1. This company only recently purchased one tract of 142 acres and another tract of 20 acres near Shinnston and is building a mile or more of tramway. Provision is being made by the company for loading about 15 railroad cars of coal a day. The company has as its head Will Ghagan of Ghagan, Pa.

The transportation and sale of coal on a large scale will be undertaken by the new organized **Parkersburg Dry Docks, Transportation & Coal Co.**, with headquarters in Moundsville, this company having a capitalization of $250,000. Pittsburgh and Wilkinsburg people are largely interested in the new venture, among them being M. J. McQuaide, J. R. Dorsey, Stephen Steranchak, of Pittsburgh; James Balph and R. A. Balph of Wilkinsburg.

Advantage has been taken by the **Bethlehem Mining Corporation** of the lull in the coal business to make repairs at a number of its plants and to provide for better accommodations for its miners, building having been especially active at both the Dakota and Barracksville plants in Marion County. At the Barracksville plant a total of twenty houses have been built for miners and at Dakota the houses just put up are thirty in number. While the Dakota mines of the company have been in idleness electrical equipment has been installed, including a 15-ton Jeffrey locomotive.

Further details secured in connection with the organization of the **Fat Creek Coal Corporation** of Beckley of which E. C. Minter is president, disclose the fact that this company has purchased 300 acres of land on Fat Creek in Shady Spring District extending to the Piney branch of the C. & O. It will not be a difficult matter to develop the Fat Creek property owing to the nearness of the C. & O. Railway and also to the fact that a road will be constructed up Glade Creek for the purpose of opening up the large territory recently acquired by the New River, Raleigh & Pocahontas Co. just across the mountain from Fat Creek.

Preparations are being made by the newly organized **Coalfield Fuel Co.**, with headquarters in Charlestown, to operate in the Kanawha County field. The company is capitalized at $100,000. Principal figures in the new concern are: H. P. Tompkins, Clyde B. Johnson, P. N. Lowe, N. L. McClure, Benj. Hurvitz, all of Charleston.

Increases in capital stock have been authorized for the following companies: **Fall Branch Coal Co.**, Bluefield, of which O. C. Jenkins is president, from $150,000 to $200,000; **Harlan-Cumberland Coal Mining Co.**, W. B. Stevens, president, from $150,000 to $300,000.

**The Stone & Scott Coal Co.** is one of the larger coal concerns recently launched, being capitalized at $500,000, for the purpose of mining coal in both Marion and Harrison counties. Those interested in this company have long been active producers in northern West Virginia. Largely interested are E. B. Stone, of Morgantown; T. M. Scott, of Shinnston; Edwin B. Stone, Fred A. Stone and William D. Stone, of Morgantown. Headquarters of the company will be at Fairmont.

## BRITISH COLUMBIA

Coal production for the month of February, exclusive of the mines of the Crow's Nest Field, was as follows:

| Mine | Tons |
|---|---|
| Canadian Western Fuel Co. | 46,121 |
| Canadian Collieries (D) Ltd. | |
| Comox | 34,847 |
| South Wellington | 6,827 |
| Extension | 13,946 |
| Nanoose-Wellington Co. | 4,954 |
| Granby Consolidated M. & S. Co. | 21,681 |
| Old Wellington (King & Foster) | 135 |
| Middlesboro Collieries | 6,728 |
| Fleming Coal Co. | 3,239 |
| Coalmont Collieries | 4,420 |
| Princeton Coal & Land Co. | 794 |
| Total | 143,692 |

**The Chu Chua Coal Mining Syndicate** has secured options on approximately 5,000 acres of coal lands about two miles south of Chu Chua near Kamloops. A compressor operated by a 50-horsepower steam plant has been installed, a road built to a siding on the Canadian National Ry. and camp buildings erected to accommodate about twenty men.

## NOVA SCOTIA

**Nova Scotia Collieries** of the Sydney district produced 4,239,350 tons in 1920—420,444 tons, or 11 per cent more than in 1919. The total for 1920 is the largest since 1917, and in view of the many difficulties encountered, especially labor troubles, the increase in production is considered most satisfactory. The output for February, 1921, amounted to 46,490 tons.

## Personals

**J. W. Marsh,** of the Greene Engineering Co., of Chicago, gave two addresses before the Davenport branch of the National Association of Stationary Engineers, the subects being "The Combustion of Coal" and "The Use of Chain Grate Stokers."

The appointment of **H. I. Smith,** mining engineer with the Bureau of Mines for many years, as District Engineer to supervise coal and oil shale leasing operations, has been anonunced, with headquarters at Denver.

**Director Bain** of the Bureau of Mines, accompanied by **D. A. Lyon,** supervisor of mining experiment stations, will make a trip of inspection of stations beginning April 11. The itinerary follws: Pittsburgh, Chicago, Houghton, Mich., Minneapolis, Kansas City, Bartlesville, Okla., Rolla, Mo., St. Louis, Birmingham, Tuscaloosa and Atlanta.

**E. W. Parker,** of the Anthracite Bureau of Information, was the guest of honor recently at a luncheon given in Washington by H. Foster Bain, the Director of the U. S. Bureau of Mines. Mr. Parker was a member of the board of the U. S. Geological Survey which had charge of the fuel tests at St. Louis, out of which grew the Bureau of Mines.

**C. E. Miller,** known as the "Coal King of the Klondyke," paid his first visit to the "outside" in twenty years a few weeks ago. He spent his vacation in Vancouver and Victoria. Mr. Miller went into the Yukon in 1897 and the greater part of his time since has been spent in coal operations.

**R. Dawson Hall** was the guest of the Franklin Club, Wilkes-Barre, Pa., at its annual banquet and gathering, March 21, delivering a short address on the bearing of metal-mining practice on the preparation and mining of coal.

After being arrested twice as a suspicious character due to having a Tennessee license number on his automobile, **W. H. Bradford,** formerly of Nashville, who recently came with the Dixie Fuel Co., Louisville, has decided to get a Kentucky license, so that the Louisville cops will give him a little rest after two arrests in less than a week.

**W. T. Carden** has been elected president of Boland Bros. Co., anthracite operators of Scranton, Pa. He was the Scranton representative of the Weaver Coal Co. of Buffalo and the vacancy has been filled by **Harold T. Carden,** also a member of the Weaver sales staff for sometime.

**T. J. Foster,** former owner and founder of the *Colliery Engineer* and founder of the International Correspondence Schools, has moved to Philadelphia, where he will open an Industrial Correspondence University in April.

**Harrison Null Boyd,** superintendent of the Edenborn and Gates mines of the H. C. Frick Coke Co., resigned March 1 to engage in a new fuel enterprise of which he is president and general manager. Mr. Boyd leaves the Frick company after 25 years of service.

**James C. Stuckslager** of Jefferson township has been made manager of the farms of the H. C. Frick Coke Co., in Washington County, Pa.

**James E. Gibbs,** a well-known coal operator of Huntington, was a visitor in the Fairmont region the latter part of February.

**Gaston Caperton,** president of the Slab Fork Coal Co., with headquarters at Slab Fork on the Virginian Ry., was a visitor in Charleston late in February.

**Brooks Fleming, Jr.,** assistant to the president of the Consolidation Coal Co., and **Frank R. Lyon,** vice-president in charge of operations, were visitors in Charleston on the last day of February.

**Charles A. Owen,** president of the Tidewater Coal Exchange and head of the Imperial Coal Corporation, New York City, was vacationing at Pinehurst. He remained at the Carolina resort until March 27.

**J. C. Collins,** until a few years ago superintendent of transportation of the Illinois Southern R.R. and more recently connected with the Moffat Coal Co. of St. Louis, has resigned to accept a position as general representative of the Kerens-Donnewald Coal Co., with headquarters at St. Louis.

**H. R. Oglesby,** formerly chief inspector for the Fuel Administration in Missouri and more recently a retailer at Warrensburg, has accepted a position as sales manager of the retail and jobbing department of the Kaw Valley Fuel Co. of Kansas City.

**Arthur King,** for several years representative for the Edison Storage Battery Co., St. Louis, in the southern Illinois and Missouri territory, has resigned to accept a similar position with the Atlas Storage Battery Co. of St. Louis. Mr. King specializes in storage batteries for mine locomotives, and is well known throughout his territories.

**G. W. Noble,** of the Bell & Zoller Coal Co., Chicago, has accepted a position in the sales department of the Rialto Coal Co., Chicago.

**John Rolla** of Murphysboro, Ill., has been appointed a member of the Mine Investigation Commission by Governor Small, succeeding **P. H. Donnelly** of Springfield. Mr. Rolla retired from active work three years ago as the head of the Sunnyside Coal Co. at Herrin.

**Thos. J. Casey,** formerly of the Wabash R.R., is now connected in a traveling capacity with the Wallace Coal Co. at St. Louis.

**E. H. Sandidge,** for many years chief clerk in the fuel department of the Frisco R.R. at St. Louis, has resigned to go with the Interstate Commerce Commission. He is succeeded by **C. S. Bradford** of Harriman, Pa.

**M. B. Casey,** who came to the Wabash R.R. at St. Louis as superintendent of transportation from the Lackawanna System prior to the war, has severed his connection with the American Ry. Assn. to engage in the selling of coal in quantities to railroads and large industrials, with offices at 2026-7 Railway Exchange Bldg., St. Louis.

**L. V. Bermingham,** secretary and treasurer of the St. George Coal Co., of New York City, recently returned from an extensive tour of Canada.

**Charles E. Lester,** of Hartwell & Lester, New York City, has returned from a European trip.

**E. E. Loomis,** president of the Lehigh Valley R.R. Co. will be a member of the Board of Trustees of The New York Trust Co. which succeeds on April 1 the old New York Trust Co. by merging the Liberty National Bank.

**Gardner Pattison,** of Pattison & Bowns until that concern was merged with the Farrell Coal Co., was re-elected a vice-president and director of The United States Trucking Co. on March 9.

Whitney & Kemmerer announce that **Harry C. Haggerty** succeeds John W. Whiteley as general sales agent for New York, and George W. Scura has been appointed assistant general sales agent. Both have been connected with the firm for many years.

**J. G. Bradley,** president of the West Virginia Coal Association and a member of the executive committee of the National Coal Association, attended a meeting of the executive committee in Pittsburgh on March 7.

**W. D. Ord,** president of the Red Jacket Consolidated Coal & Coke Co. of Landgraf, W. Va., was a visitor in Charleston early in March.

**Howard Showalter,** president of the Diamond Fuel Co., with headquarters at Fairmont, was a visitor in Charleston on March 4, making the trip to attend the inauguration of Governor E. F. Morgan.

**H. H. Morris,** president of the West Virginia Standard Coal Co., with headquarters at Huntington, spent several days in Washington early in March in conference with officials of the Chesapeake & Ohio concerning freight rate matters.

**A. J. King,** of Huntington, extensively interested in mining operations in the Logan field, attended the inauguration of Governor E. F. Morgan at Charleston.

**A. Brooks Fleming,** assistant to the president of the Consolidation Coal Co., and Frank R. Lyon, vice president of the company, were in Charleston, W. Va., during the first week of March on their way to New York.

**J. W. Colley,** assistant to the secretary of the Logan Operators Association who has been located at Huntington, will hereafter divide his time between Logan and Huntington.

**V. H. Palmer,** who has been connected with the Ore & Coal Exchange, Cleveland, for the past three years, in charge of coal movement, has resigned to accept a position with the Milwaukee Fuel Co., C. Reiss Coal Co. and the Great Lakes Coal Mine Co. **F. I. Kennedy** is in charge of the Cleveland offices of these coal companies and Mr. Palmer will make his headquarters in Cleveland.

**Michael Gallagher,** general manager of the Wheeling & Lake Erie Coal Mining Co. and **C. E. Sullivan,** president of the Central Coal Mining Co., were guests at a dinner tendered by Ohioans to President and Mrs. Harding.

**S. H. Robbins,** president of the Youghiogheny & Ohio Coal Co. and **Michael Gallagher,** general manager Wheeling & Lake Erie Coal Mining Co., have been elected directors of the new Midland Bank, Cleveland.

The Morgantown Coal Co. was represented in Cleveland during the first few days of March by **Marvin L. Taylor** of Morgantown.

**M. R. Ingold** of the sales department of the Bertha Coal Co. of Pittsburgh spent a few days in the Marion County, W. Va. field the first of the month.

**Whitney Warner,** vice-president of the Warner Collieries Co., Cleveland, has returned from a vacation in Florida.

**G. C. Weitzel,** general manager, Great Lakes Coal Mining Co., with extensive operations in No. 8 field, office Columbus, has departed for an extended trip to the West Indies and Canal Zone.

**B. C. Tucker,** president of the Brilliant and Jean Coal Mining companies, Cleveland, has returned from a pleasure trip to California.

**C. J. Goodyear,** traffic manager, Pittsburgh Coal Producers Association, was a visitor in Cleveland recently.

**C. H. Tarleton,** manager of the West Virginia Division of the Consolidated Coal Co. was a visitor in Baltimore about March 17.

**A. Lisle White,** president of the Northern West Virginia Coal Operators' Association spent a few days in Baltimore on business about the middle of March.

**Max Tomb,** head of the branch office of the Raleigh Smokeless Coal Co. at Bluefield was incapacitated for duty several days earlier in the month when compelled to undergo an operation.

**A. W. Calloway,** president of the Davis Coal & Coke Co., with headquarters at Baltimore, and **R. P. Maloney,** general manager of the same company with headquarters at Thomas were visitors in the Kanawha field about the middle of March.

**E. J. McQuail** of the Pocahontas region and one of the successful operators in the Norfolk & Western coal territory paid a visit to West Virginia's capital during the latter part of March.

**J. C. McKinley** of the Richland Coal Co., with headquarters at Wheeling was a visitor on March 21 at the capital of West Virginia.

## Association Activities

### Northern West Virginia Operators' Association

After adopting a resolution favoring the enactment of legislation providing for a sales tax at the coming session of the legislature, the association at a meeting held in Fairmont during the first week of March, took steps toward securing a change in existing freight rates to the Lakes and to Western markets, which it is claimed, are discriminatory because of a differential of anywhere from 40 to 56c.—a differential which makes it absolutely impossibe for mines in northern West Virginia to compete with those in Ohio and other Central Competitive territory as well as mines in Louisville & Nashville territory in shipping coal to the Lakes and to Western points. In order to get the matter properly before Lake coal carrying roads and the Interstate Commerce Commission, a strong committee was named, those appointed being; C. H. Jenkins, Fairmont, chairman; J. C. Callahan, Clarksburg; Brooks Fleming, Jr., Fairmont; H. M. Crawford, Philippi, and J. L. Hatfield, Morgantown.

There has been no change in the attitude of the association toward the assignment of cars for railroad fuel loading, there still being pronounced opposition to such a practice. It was considered a propitious time to ask that this be discontinued and a special committee was appointed to secure such action composed of the following: C. F. Robinson, Fairmont; Everett Drennen, Elkins, and J. M. Orr, Clarksburg, W. Va., this committee being given full power to act.

### Southern Ohio Coal Exchange

The exchange at the regular meeting March 15 considered a number of questions including pending legislation and market conditions. The important piece of legislation is the bill pending in the house of representatives to make the mining of coal in Ohio a public utility, bringing it under the absolute control of the Public Utilities Commission. While it does not appear that this bill has any chance of being enacted in its present form, still W. D. McKinney, secretary-commissioner of the exchange, is following it through the various committees in the legislature.

The bill to tax the production of coal and all minerals in the state one per cent is also believed to be dead for the time being. This bill, it is pointed out, will lay a heavy burden on Ohio producers in competition with other states.

### Pittsburgh Vein Operators Association of Ohio

The annual meeting of the Pittsburgh Vein Operators' Association of Ohio was held on Monday, March 14, in Cleveland, The following officers were elected for the ensuing year: Michael Gallagher, president; Whitney Warner, vice-president; H. R. Sullivan, treasurer; D. F. Hurd was re-elected secretary. The following members were elected to serve on the executive committee of which the president, Michael Gallagher, is chairman; C. S. Deal, A. W. Dean, William Harper, Henry Johnson, T. K. Maher, S. H. Robbins, Whitney Warner, C. P. White, R. L. Wildermuth, H. E. Willard and W. R. Woodford.

Charles J. Albasin, commissioner, Bridgeport, and Emerson Campbell, tax agent, St. Clairsville, were also elected.

The new president is general manager of the Wheeling & Lake Erie Coal Mining Co., a subsidiary of the M. A. Hanna Co., and Whitney Warner, vice-president, is vice-president and treasurer of the Warner Collieries Co. Mr. Gallagher succeeds F. K. Maher, who has served two terms as president of the association.

### Upper Potomac Coal Association

T. M. Dodson, S. D. Brady and Douglas Gorman have been elected directors of the association to serve for three years. R. A. Smith, James A. Brown and W. E. Ambrose were elected for two-year terms and Carroll Pattison, R. Marsh Dean and A. Spates Brady were elected for single year terms.

The by-laws of the association, have been amended so as to admit as associate members those who are not coal operators but who are intimately interested in the production of coal. The associate members are to receive the Association's circulars, are to be privileged to attend meetings and may participate in discussions but are not allowed to vote.

### Pike County Coal Mining Institute

A meeting of the institute was held at the Cumberland Club at Pikeville, Ky., March 4. Discussions on various mine problems were led by G. E. Daugherty, T. H. Huddy, E. L. Bailey, G. A. Clutts and others.

## Obituary

**William Frederick Holsing**, 83 years old, long identified with the coal and coke industry of Fayette, Westmoreland and Washington Counties, but for the last decade retired, died recenty at Dunbar, Pa.

**David C. Evans**, aged 43, a mine superintendent for the Poston Mining Co., at Millfield, O., died in a Columbus hospital from injuries received in an automobile accident near Chillicothe.

**George Wales** of Dubois, Pa., well known among coal men in Pennsylvania and Kentucky, died recently following an operation for appendicitis. Mr. Wales had been a mine inspector in the Dubois district since 1917.

**A. W. Crawford** of Hillsboro, Ill., well known in Macoupin County, was instantly killed at Wood River recently in an automobile accident. Mr. Crawford was prominent in Illinois coal mining circles for many years.

**Guy B. Aldrich**, well-known coal salesman, died suddenly from heart disease near the entrance to his office in 143 Liberty Street, New York City, on March 12. Mr. Aldrich was connected with McCann & Camp.

**Jesse Knight of Provo**, president of the Spring Canyon Coal Co., the Red Creek Coal Co. and other coal companies died at his home on March 14, aged 75. Mr. Knight, who suffered a stroke of paralysis a month ago from which he never rallied, came to Utah in 1850. He was the father of Senator J. Wm. Knight of the Utah Senate.

## Traffic News

The I. C. C. has vacated its order which suspended schedules providing through rates on coal and coke based on combination of locals on the Santa Fe system, the carriers having canceled the schedules, and the proceeding has been discontinued.

**The Cannelton Sewer Pipe Co.**, of Cannelton, Ind., in a complaint to the I. C. C. attacks as unreasonable the rates on bituminous coal from mines in Indiana on the Southern Ry. to Cannelton.

**The Huntingburg (Ind.) Pressed Brick Co.** has attacked the rates to that city and the **U. S. Hame Co.**, of Tell City, Ind., the rates to Tell City.

**The Graselli Chemical Co.**, of Cleveland, attacks as unreasonable the rates on soft coal from Clinton to Terre Haute, Ind.

**The Bell & Zoller Coal Co.**, of Chicago, in a complaint to the I. C. C. attacks the distribution of coal cars under car service rule No. 31, and asks for restoration of coal car distribution rules in effect prior thereto.

The I. C. C. has assigned for oral argument at Washington on April 15 the cases of the **Little Cahaba Coal Co.**, and the **Fairchild Lumber & Coal Co.**

**The Jeremy Fuel Co.**, of Salt Lake, complains against a rate of $1.25 per ton on bituminous coal from points in Utah to Salt Lake, and also against a subsequent rate of $1.35 and requests $7,000 refund.

**The Minnesota Steel Co.**, of Duluth, complains against unreasonable rates between June 25 and November 5, 1918, on coal from Missabe Junction to Steelton, and asks a refund of $82,356.

The I. C. C. has decided that the proposed change in routing of coal from mines in Kentucky and Tennessee on the Louisville & Nashville to Atlanta, Ga., beyond Cartersville, Ga., is justified, and has vacated its order suspending the change and discontinued the proceeding.

**The Loogootee Fire Clay Products Co.**, of Indiana, in a complaint to the I. C. C. attacks as unreasonable the rates on soft coal from Cannelburg and Montgomery, Ind., to Loogootee, Ind.

**Fred Kixmiller**, of Vincennes, Ind., in a complaint attacks as unreasonable the rate on soft coal from Wheatland to Vincennes.

## Publications Received

The United States Bureau of Mines has just issued Bulletin 185, **"Pennsylvania Mining Statutes Annotated,"** by J. W. Thompson, law examiner of the bureau. The bulletin includes every statute enacted by the legislature of Pennsylvania from 1785 to 1919, relating to minerals, mines and mining operations, whether obsolete, repealed, invalid, or at present in force. The bulletin, which contains 1,221 pages, is the only publication giving the mining statutes of Pennsylvania complete, and accompanied by the court holdings. Copies of Bulletin 185 may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C., at a price of one dollar.

## Industrial News

**The United States Bureau of Mines** has issued the first approval for a storage battery locomotive for use in gaseous mines to the George D. Whitcomb Co., of Rochelle, Ill. The approval, dated March 14, covers a six-ton storage battery locomotive, which may be equipped with a battery consisting of either 80-G-14 Edison cells or 48-L-149-29 plate Gould cells. Caustic potash is specified as the electrolyte for use with the Edison battery. As approved the Bureau of Mines recommends this locomotive for service in gaseous mines and considers it much safer than the types heretofore used.

**Philadelphia, Pa.**—The Morrison & Risman Co., jobbers in new and relaying rails, accessories, has just established an office in 778 Drexel Bldg., with R. B. Morrison, district manager.

**Huntington, W. Va.**—The branch office of the Raleigh Smokeless Fuel Co. has been discontinued and Rex L. Tomb, who has been in charge of the office, will hereafter be located in Cincinnati.

**Pottsville, Pa.**—The New England Fuel & Supply Co., Inc., G. H. Fairbanks, district manager, has opened a new field office, 311 Thompson Bldg.

**Jeffersonville, Ind.**—The Coal Supply Co., Jeffersonville, has moved its offices to 1745 High Street, Louisville, Ky., directly across the river from the old location.

**New York, N. Y.**—The Metropolitan Life Insurance Co. has just issued a bulletin, "Why the Group Insurance Plan is Worth While," giving the opinions of various industrial executives on the group plan.

**Montreal, Que.**—Dwight P. Robinson & Co., Inc., engineers and constructors of New York, has recently opened branch offices in the Dominion Express building.

## Recent Patents

**Mine Trolley.** Robert G. Wilson, Davis, West Va., 1,366,142. Jan. 18, 1921. Filed Jan. 21, 1920. Serial No. 352,957.

**Miners' Lamp.** Edward M. Erickson, Ray, Ariz., 1,366,371. Jan. 25, 1921. Filed May 12, 1919. Serial No. 296,522.

## Coming Meetings

**Nova Scotia Mining Society** will hold its annual meeting April 5 and 6 in Halifax, N. S. Some interesting coal papers are to be presented.

**The American Wholesale Coal Association** will hold its annual convention in Washington, D. C., June 7 and 8. Secretary, G. H. Cushing, Woodward Bldg., Washington, D. C.

**Canadian Retail Coal Association** will hold its annual convention April 6 and 7 at the King Edward Hotel, Toronto, Ont., Canada. Secretary, B. A. Caspell, Brantford, Ont., Canada.

**The International Railway Fuel Association** will hold its thirteenth annual meeting at the Hotel Sherman, Chicago, Ill., May 24, 25 and 26. Secretary, J. G. Crawford, Chicago, Ill.

**The National Coal Association** will hold its next annual convention at the Waldorf Astoria Hotel, New York City, May 19 and 20. White Sulphur Springs hotel reservations have been cancelled. W. B. Reed, secretary, Commercial National Bank Bldg., Washington, D. C.

**The American Society of Mechanical Engineers** will hold its spring meeting May 23, 24, 25 and 26 at the Congress Hotel, Chcago, Ill. Secretary Calvin W. Rice, 29 West 39th St., New York City.

**National Chamber of Commerce** will hold its ninth annual meeting at Atlantic City, N. J., April 27, 28 and 29.

**National Retail Coal Merchants Association** Sixth Conference of Secretaries and Executives to be held at the Baltimore Hotel, Kansas City, Mo., May 15 and 16. For reservations address H. S. Mitchell, New York Life Bldg., Kansas City, Mo.

**National Retail Coal Merchants Association** will hold its annual meeting May 12, 13 and 14 at the Jefferson Hotel, Richmond, Va. Secretary, E. G. Gordon, Philadelphia, Pa.

**The National Foreign Trade Council** will hold its eighth annual conventon May 4, 5, 6 and 7 at Cleveland, Oho. Secretary, J. G. Hammond, 409 Park Bldg., Cleveland, Ohio.

**Illinois Mining Institute** will hold its spring outing the latter part of May on the Mississippi and Illinois Rivers, the boat leaving St. Louis for Peoria on May 26 and returning on May 28. Secretary, Martin Bolt, Springfield, Ill.